

WHITE HOUSE RFP, 1978

[Request for Proposal.
I did not submit.]

EXECUTIVE OFFICE OF THE PRESIDENT

OFFICE OF ADMINISTRATION

Washington, D.C. 20503

NOV 3 1978

Gentlemen:

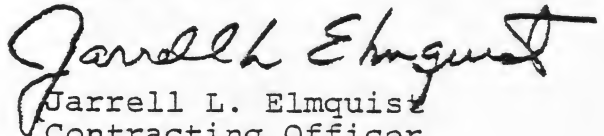
Attached is a copy of the Executive Office of the President's (EOP) Request for Proposal (RFP) for an Automatic Data Processing capability to meet the needs of all EOP agencies.

Several things should be noted. This RFP involves the acquisition of two separate systems, one for the EOP Office Automation function and a second for the EOP Data Processing Function. The specification for the two systems are in Attachment IV to the RFP entitled Technical Specifications for the EOP Information Processing System. Since the requirement is to be met by two separate systems requiring two separate benchmarks it was determined that the submission dates for the proposals would be staggered. Therefore, offers for the Office Automation System are required on February 1, 1979 and Data Processing System submissions are required on April 1, 1979. Benchmark materials for the Office Automation System will be available 15 days from today and the Data Processing System material 60 days from today.

Also note that the terms and conditions and cost evaluation models for both systems are the same with the exception of a variation in the desirable features for each system. The evaluation models for the desirables is in Attachment V to the RFP. We are aware that the values of individual desirable features are not present in the evaluation models. These values will be provided concurrent with release of the benchmark materials.

I would like to thank the ADP industry for your continuing interest in this EOP acquisition and the assistance we have received through your responses to pre releases of the specification. I hope after you have reviewed the attached RFP you will continue to assist through constructive written questions concerning inconsistencies which exist or clarifications you feel require explanations. All questions of this nature will be answered and all potential offerors will receive copies.

Sincerely,


Jarrell L. Elmquist
Contracting Officer

Attachment

SOLICITATION, OFFER AND AWARD

3. CERTIFIED FOR NATIONAL DEFENSE UNDER DCS REG. 1 AND/OR DMS REG. 1
RATING.

4. PAGE 1 OF

1. CONTRACT (Proc. Inst. Ident.) NO.

EOPOA-79-R-0001

2. SOLICITATION NO.

☐ ADVERTISED (IFB) ☒ NEGOTIATED (RFP)

5. DATE ISSUED

Nov. 3, 1979

6. REQUISITION/PURCHASE REQUEST NO.

7. ISSUED BY

CODE

Executive Office of the President
Office of Administration
726 Jackson Pl., N.W.
Washington, D. C. 20503

8. ADDRESS OFFER TO (If other than block 7)

In advertised procurement "offer" and "offeror" shall be construed to mean "bid" and "bidder"

SOLICITATION

9. Sealed offers in original and 3 copies for furnishing the supplies or services in the Schedule will be received at the place specified in block 8, or if handcarried, in the depository located in Room 3002, New Executive Office Bldg. until 5:00PM EST local time 5:00 PM 2/1/79 (Hour) 4/1/79 (Date)

If this is an advertised solicitation, offers will be publicly opened at that time.

CAUTION - LATE OFFERS: See pars. 7 and 8 of Solicitation Instructions and Conditions.

All offers are subject to the following:

- The Solicitation Instructions and Conditions, SF 33-A, _____ edition which is attached or incorporated herein by reference.
- The General Provisions, SF 32, _____ edition, which is attached or incorporated herein by reference.
- The Schedule included herein and/or attached hereto.
- Such other provisions, representations, certifications, and specifications as are attached or incorporated herein by reference. (Attachments are listed in schedule.)

FOR INFORMATION CALL (Name & telephone no.) (No collect calls) ▶

SCHEDULE

10. ITEM NO	11. SUPPLIES/SERVICES	12. QUANTITY	13. UNIT	14. UNIT PRICE	15. AMOUNT
	ADP equipment software services as specified herein.				

See continuation of schedule on page 4

OFFER (pages 2 and 3 must also be fully completed by offeror)

In compliance with the above, the undersigned agrees, if this offer is accepted within _____ calendar days (60 calendar days unless a different period is inserted by the offeror) from the date for receipt of offers specified above, to furnish any or all items upon which prices are offered at the price set opposite each item, delivered at the designated point(s), within the time specified in the schedule.

16. DISCOUNT FOR PROMPT PAYMENT (See par. 2, SF 33-A)

~ 10 CALENDAR DAYS.

~ 20 CALENDAR DAYS.

~ 30 CALENDAR DAYS.

~ CALENDAR DAYS

17. OFFEROR

CODE

FACILITY CODE

18. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or print)

NAME AND ADDRESS (Street, city, county, State and ZIP code)

AREA CODE AND TELEPHONE NO ▶

19. SIGNATURE

20. OFFER DATE

☐ Check if remittance address is different from above - enter such address in Schedule.

AWARD (To be completed by Government)

21. ACCEPTED AS TO ITEMS NUMBERED

22. AMOUNT

23. ACCOUNTING AND APPROPRIATION DATA

24. SUBMIT INVOICES (4 copies unless otherwise specified)

TO ADDRESS SHOWN IN BLOCK

25. NEGOTIATED PURSUANT TO

10 U.S.C. 2304(a) ()

41 U.S.C. 252(c) ()

26. ADMINISTERED BY (If other than block 7)

CODE

27. PAYMENT WILL BE MADE BY

CODE

28. NAME OF CONTRACTING OFFICER (Type or print)

29. UNITED STATES OF AMERICA

30. AWARD DATE

BY (Signature of contracting officer)

Award will be made on this form or on Standard Form 28, or by other official written notice

REPRESENTATIONS, CERTIFICATIONS AND ACKNOWLEDGMENTS

REPRESENTATIONS (Check or complete all applicable boxes or blocks.)

The offeror represents as part of his offer that:

1. SMALL BUSINESS (See par. 14 on SF 33-A.)

He ☐ is, ☐ is not, a small business concern. If offeror is a small business concern and is not the manufacturer of the supplies offered, he also represents that all supplies to be furnished hereunder ☐ will, ☐ will not, be manufactured or produced by a small business concern in the United States, its possessions, or Puerto Rico.

2. MINORITY BUSINESS ENTERPRISE

He ☐ is, ☐ is not, a minority business enterprise. A minority business enterprise is defined as a "business, at least 50 percent of which is owned by minority group members or, in case of publicly owned businesses, at least 51 percent of the stock of which is owned by minority group members." For the purpose of this definition, minority group members are Negroes, Spanish-speaking American persons, American-Orientals, American-Indians, American Eskimos, and American-Aleuts.

3. REGULAR DEALER - MANUFACTURER (Applicable only to supply contracts exceeding \$10,000.)

He is a ☐ regular dealer in ☐ manufacturer of, the supplies offered.

4. CONTINGENT FEE (See par. 15 on SF 33-A.)

(a) He ☐ has, ☐ has not, employed or retained any company or persons (other than a full-time bona fide employee working solely for the offeror) to solicit or secure this contract, and (b) he ☐ has, ☐ has not, paid or agreed to pay any company or person (other than a full-time bona fide employee working solely for the offeror) any fee, commission, percentage, or brokerage fee contingent upon or resulting from the award of this contract; and agrees to furnish information relating to (a) and (b) above, as requested by the Contracting Officer. (Interpretation of the representation, including the term "bona fide employee," see Code of Federal Regulations, Title 41, Subpart 1-1.5.)

5. TYPE OF BUSINESS ORGANIZATION

He operates as ☐ an individual, ☐ a partnership, ☐ a nonprofit organization, ☐ a corporation, incorporated under the laws of the State of _____.

6. AFFILIATION AND IDENTIFYING DATA (Applicable only to advertised solicitations.)

Each offeror shall complete (a) and (b) if applicable, and (c) below:

(a) He ☐ is, ☐ is not, owned or controlled by a parent company. (See par. 16 on SF 33-A.)

(b) If the offeror is owned or controlled by a parent company, he shall enter in the blocks below the name and main office address of the parent company:

NAME OF PARENT COMPANY
AND MAIN OFFICE ADDRESS
(Include ZIP code)

(C) EMPLOYER'S IDENTIFICATION NUMBER (SEE PAR. 17 ON SF 33-A.)

OFFEROR'S E.I. NO.

PARENT COMPANY'S E.I. NO.

7. EQUAL OPPORTUNITY

(a) He ☐ has, ☐ has not, participated in a previous contract or subcontract subject either to the Equal Opportunity clause herein or the clause originally contained in section 301 of Executive Order No. 10925, or the clause contained in Section 201 of Executive Order No. 11114; that he ☐ has, ☐ has not, filed all required compliance reports; and that representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained prior to subcontract awards. (The above representation need not be submitted in connection with contracts or subcontracts which are exempt from the equal opportunity clause.)

(b) The bidder (or offeror) represents that (1) he ☐ has developed and has on file, ☐ has not developed and does not have on file, at each establishment affirmative action programs as required by the rules and regulations of the Secretary of Labor (41 CFR 60-1 and 60-2) or (2) he ☐ has not previously had contracts subject to the written affirmative action programs requirement of the rules and regulations of the Secretary of Labor. (The above representation shall be completed by each bidder (or offeror) whose bid (offer) is \$50,000 or more and who has 50 or more employees.)

CERTIFICATIONS (Check or complete all applicable boxes or blocks)

1. BUY AMERICAN CERTIFICATE

The offeror certifies as part of his offer, that: each end product, except the end products listed below, is a domestic end product (as defined in the clause entitled "Buy American Act"); and that components of unknown origin have been considered to have been mined, produced, or manufactured outside the United States.

EXCLUDED END PRODUCTS

COUNTRY OF ORIGIN

2. **CLEAN AIR AND WATER** (Applicable if the bid or offer exceeds \$100,000, or the contracting officer has determined that orders under an indefinite quantity contract in any year will exceed \$100,000, or a facility to be used has been the subject of a conviction under the Clean Air Act (42 U.S.C. 1857c-8(c)(1)) or the Federal Water Pollution Control Act (33 U.S.C. 1319(c)) and is listed by EPA, or is not otherwise exempt.)

The bidder or offeror certifies as follows:

(a) Any facility to be utilized in the performance of this proposed contract ☐ has, ☐ has not, been listed on the Environmental Protection Agency List of Violating Facilities.

(b) He will promptly notify the contracting officer, prior to award, of the receipt of any communication from the Director, Office of Federal Activities, Environmental Protection Agency, indicating that any facility which he proposes to use for the performance of the contract is under consideration to be listed on the EPA list of Violating Facilities.

(c) He will include substantially this certification, including this paragraph (c), in every nonexempt subcontract.

3. **CERTIFICATION OF INDEPENDENT PRICE DETERMINATION** (See par. 18 on SF 33-A)

(a) By submission of this offer, the offeror certifies, and in the case of a joint offer, each party thereto certifies as to its own organization, that in connection with this procurement:

(1) The prices in this offer have been arrived at independently, without consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other offeror or with any competitor;

(2) Unless otherwise required by law, the prices which have been quoted in this offer have not been knowingly disclosed by the offeror and will not knowingly be disclosed by the offeror prior to opening in the case of an advertised procurement or prior to award in the case of a negotiated procurement, directly or indirectly to any other offeror or to any competitor; and

(3) No attempt has been made or will be made by the offeror to induce any other person or firm to submit or not to submit an offer for that purpose of restricting competition.

(b) Each person signing this offer certifies that:

(1) He is the person in the offeror's organization responsible within that organization for the decision as to the prices being offered herein and that he has not participated, and will not participate, in any action contrary to (a)(1) through (a)(3), above; or

(2) (i) He is not the person in the offeror's organization responsible within that organization for the decision as to the prices being offered herein, but that he has been authorized in writing to act as agent for the persons responsible for such decision in certifying that such persons have not participated and will not participate, in any action contrary to (a)(1) through (a)(3) above, and as their agent does hereby so certify; and (ii) he has not participated, and will not participate, in any action contrary to (a)(1) through (a)(3) above.

4. **CERTIFICATION OF NONSEGREGATED FACILITIES** (Applicable to (1) contracts, (2) subcontracts, and (3) agreements with applicants who are themselves performing federally assisted construction contracts, exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause.)

By the submission of this bid, the bidder, offeror, applicant, or subcontractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location under his control, where segregated facilities are maintained. He certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The bidder, offeror, applicant, or subcontractor agrees that a breach of this certification is a violation of the Equal Opportunity clause in this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion or national origin, because of habit, local custom, or otherwise. He further agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause; that he will retain such certifications in his files; and that he will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have submitted identical certifications for specific time periods):

Notice to prospective subcontractors of requirement for certifications of nonsegregated facilities.

A Certification of Nonsegregated Facilities must be submitted prior to the award of a subcontract exceeding \$10,000 which is not exempt from the provisions of the Equal Opportunity clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually). *NOTE: The penalty for making false offers is prescribed in 18 U.S.C. 1001.*

ACKNOWLEDGMENT OF AMENDMENTS

The offeror acknowledges receipt of amendments to the Solicitation for offers and related documents numbered and dated as follows:

AMENDMENT NO	DATE	AMENDMENT NO	DATE

NOTE: Offers must set forth full, accurate and complete information as required by this Solicitation (including attachments). The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

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SECTION A - REPRESENTATIONS, CERTIFICATIONS, AND ACKNOWLEDGEMENTS

A.11. CONTACT FOR CONTRACT ADMINISTRATION AND AUTHORIZED NEGOTIATOR

For use in the event your firm receives a contract as a result of this solicitation, please designate below the person(s) whom the Government may contact, during the period of the contract, for prompt action on matters pertaining to your administration of the contract and the person(s) authorized to conduct negotiations and contractually commit your concern.

AUTHORIZED ADMINISTRATOR:

NAME----- ADDRESS-----

TITLE----- TELEPHONE NO.-----

AUTHORIZED NEGOTIATOR:
(IF THIS PERSON IS NOT AUTHORIZED TO CONTRACTUALLY COMMIT YOUR CONCERN - PLEASE SO STATE)

NAME----- ADDRESS----- TITLE-----
TELEPHONE NO.-----

A.12. LABOR SURPLUS AREA CONCERNS

This procurement is not set aside for labor surplus area concerns. However, the offeror's status in this respect may affect entitlement to award in case of tie offers or of offer evaluation in accordance with the Buy American clause of this solicitation. In order to have his entitlement to a preference determined if those circumstances should apply, the offeror must:

(i) furnish with his offer evidence that he or his first-tier subcontractor is a certified-eligible concern with a first preference in accordance with 29 CFR 8.7(b) and 8.9(c) or a certified-eligible concern with a second preference in accordance with 29 CFR 8.7(c) and 8.9(d), and identify below the address at which the costs he will incur on account of manufacturing or production (by himself if a certified concern or by certified concerns acting as first-tier subcontractors) amount to more than 25% of the contract price, or

(ii) identify below the persistent or substantial labor surplus area in which the costs he will incur on account of manufacturing or production (by himself or his first-tier subcontractors) amount

to more than 50% of the contract price. (If the offeror proposes to qualify as a persistent or substantial labor surplus area concern by including costs to be incurred by a certified concern not located in a labor surplus area, evidence of such certification must be furnished.)

Failure to furnish evidence of certification by the secretary of Labor if applicable, and to identify the locations as specified above will preclude consideration of the offeror as a labor surplus concern. Offeror agrees that if, as a labor surplus area concern, he is awarded a contract for which he would not have qualified in the absence of such status, he will perform the contract or cause it to be performed, in accordance with the obligations which such status entails.

A.13.

PLACE OF PRINCIPAL MANUFACTURE

List the place(s) of principal manufacture of supplies or performance of services with approximate dollar shipments from each site under any contract resulting from this solicitation:

(amount)	(street address)	(city)	(county)	(state)	(zip code)
----------	------------------	--------	----------	---------	------------

(amount)	(street address)	(city)	(county)	(state)	(zip code)
----------	------------------	--------	----------	---------	------------

(amount)	(street address)	(city)	(county)	(state)	(zip code)
----------	------------------	--------	----------	---------	------------

(amount)	(street address)	(city)	(county)	(state)	(zip code)
----------	------------------	--------	----------	---------	------------

A.14.

GOVERNMENT PRODUCTION AND RESEARCH PROPERTY

Offerors shall state below whether to their knowledge this procurement involves the acquisition of Government production and research property, the disposal of which may be restricted by patent or other rights.

A.15.

CONTRACTOR'S DATA CERTIFICATION

The offeror shall certify below whether he has delivered or is obligated to deliver to the Government under any contract or subcontract the same or substantially the same technical data included in his offer; if so, he shall identify one such contract or subcontract under which such technical data was delivered or will be delivered, and the place of such delivery.

A.16.

PRE-AWARD ON-SITE EQUAL OPPORTUNITY COMPLIANCE REVIEW

In accordance with regulations of the Office of Federal Contract Compliance, 41 CFR 60.1, effective July 1968, an award in the amount of \$1,000,000 or more will not be made under this solicitation unless the offeror and each of his known first-tier subcontractors (to whom he intends to award a subcontract of \$1,000,000 or more) are found, on the basis of a compliance review, to be able to comply with the provisions of the Equal Opportunity clause of this solicitation.

A.17.

AFFIRMATIVE ACTION PROGRAM

(The following certification shall be completed by each offeror whose offer is \$50,000 or more and who has 50 employees or more.)

The offeror represents that (1) he () has developed and has on file () has not developed and does not have on file at each establishment affirmative action programs as required by the rules and regulations of the Secretary of Labor (41 CFR 60-1) and 60-2), or (2) he () has not previously had contracts subject to the written affirmative action program requirement of the rules and regulations of the Secretary of Labor. If the response to (1) or (2) above is in the negative, offeror is requested to indicate whether the number of his employees is () 50 or more, or () less than 50.

A.18.

EQUAL EMPLOYMENT COMPLIANCE

By submission of this offer, the offeror represents that, to the best of his knowledge and belief, except as noted below, up to the date of his offer no written notice such as a show cause letter, a letter indicating probable cause, or any other formal written notification citing specific deficiencies, has been received by the offeror from any Federal Government agency or representative thereof that the offeror or any of its divisions or affiliates or known first-tier subcontractors is in violation of any of the provisions of Executive Order 11246 or September 24, 1965, Executive Order 11375 of October 13, 1967, or rules and regulations of the Secretary of Labor (41 CFR, Chapter 60) and specifically as to not having an acceptable affirmative

action program or being in noncompliance with any other aspect of the Equal Employment Opportunity Program. It is further agreed that should there be any changes in the status or circumstances between this date and the date of expiration of this offer or any extension thereof, the Contracting Officer will be notified promptly.

A.19. HANDICAPPED

The offeror certifies with respect to the Employment of the Handicapped clause as follows:

1. He () has, () has not previously been awarded a contract which included the clause. (If affirmative, execute 2.).
2. The time specified for contract performance () exceeded 90 days, () did not exceed 90 days, (If more than 90 days, execute 3.).
3. The amount of the contract was () less than \$500,000, () more than \$500,000, and he () has not published his program for the employment of the handicapped. (If more than \$500,000, execute 4.).
4. He () has, () has not submitted the required annual report to the Assistant Secretary of Labor for Employment Standards.
5. He () has, () has not made a good faith effort to effectuate and carry out his affirmative action program.
6. He will not award subcontracts to persons or concerns that have not published programs and submitted annual reports as required by the clause.

A.20. MINORITY BUSINESS ENTERPRISE

He () is, () is not, a minority business enterprise. A minority business enterprise is defined as a "business, at least 50 percent of which is owned by minority group members, or in a case of publicly owned businesses, at least 51 percent of the stock of which is owned by minority groups members." For the purpose of this definition, minority group members are Negroes, Spanish-speaking American persons, American-Orientals, American-Indians, American-Eskimos, and American-Aleuts.

A.21. CLEAN AIR AND WATER CERTIFICATION

(Applicable if bid or offer exceeds \$100,000, or the contracting officer has determined that orders under an indefinite quantity contract in any year will exceed \$100,000, or a facility to be used has been the subject of a conviction under the Clean Air Act (42 U.S.C. 1857c-8(c)(1)) or the Federal Water Pollution Control Act (33 U.S.C. 1319(c)) and is listed by EPA, or is not otherwise exempt.)

The offeror certifies as follows:

- (a) Any facility to be utilized in the performance of this proposed contract has (), has not (), been listed on the Environmental Protection Agency List of Violating Facilities.

(b) He will promptly notify the contracting officer, prior to award, of the receipt of any communication from the Director, Office of Federal Activities, U.S. Environmental Protection Agency, indicating that any facility which he proposes to use for the performance of the contract is under consideration to be listed on the EPA list of Violating Facilities.

(c) He will include substantially this certification, including this paragraph (c), in every nonexempt subcontract.

SECTION B - SOLICITATION CONDITIONS

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SECTION B - SOLICITATION CONDITIONS

B.1. INQUIRIES

Any questions that relate to this solicitation must be submitted in writing to the issuing office in the format shown below:

QUESTIONS AND ANSWERS

RFP NO. _____

QUESTION NO. _____ PAGE NO. _____ PARA. _____

QUESTION:

B.2. LATE OFFERS AND MODIFICATIONS OR WITHDRAWALS

(a) Any proposal received at the office designated in the solicitation after the exact time specified for receipt will not be considered unless it is received before the award is made, and;

(1) It was sent by registered or certified mail not later than the fifth calendar day prior to the date specified for receipt of offers (e.g., an offer submitted in response to a solicitation requiring receipt of offers by the 20th of the month must have been mailed by the 15th); or

(2) It was sent by mail (or telegram if authorized) and it is determined by the Government that the late receipt was due solely to mishandling by the Government after receipt at the Government installation; or

(3) It is the only proposal received.

(b) Any modifications of a proposal, except a modification resulting from the Contracting Officer's request for "best and final" offer, is subject to the same conditions as in (a)(1) and (a)(2) of this provision.

(c) A modification resulting from the Contracting Officer's request for "best and final" offer received after the time and date specified in the request will not be considered unless received before

award and the late receipt is due solely to mishandling by the Government after receipt at the Government installation.

(d) The only acceptable evidence to establish:

(1) The date of mailing of a late proposal or modification sent either by registered or certified mail is the U.S. Postal Service postmark on the wrapper or on the original receipt from the U.S. Postal Service. If neither postmark shows a legible date, the proposal or modification shall be deemed to have been mailed late. (The term "postmark" means a printed, stamped or otherwise placed impression that is readily identifiable without further action as having been supplied and affixed on the date of mailing by employees of the U.S. Postal Service.)

(2) The time of receipt at a Government installation is the time date stamp of such installation on the proposal wrapper or other documentary evidence of receipt maintained by the installation.

(e) Notwithstanding (a), (b), and (c) of this provision, a late modification of an otherwise successful (selected) proposal which makes its terms more favorable to the Government will be considered at any time it is received and may be accepted.

(f) Proposals may be withdrawn by written or telegraphic notice received at any time prior to award. Proposals may be withdrawn in person by an offeror or his authorized representative, provided his identity is made known and he signs a receipt for the proposal prior to award.

B.3. DISCOUNTS

(a) Notwithstanding the fact that a blank is provided for a ten (10) day discount, prompt payment discounts offered for payment within less than twenty (20) calendar days will not be considered in evaluating offers for award, unless otherwise specified in the solicitation. However, offered discounts of less than 20 days will be taken if payment is made within the discount period, even though not considered in the evaluation of offers. For the purpose of bid evaluation, any prompt payment discount which is eligible (i.e., for a period of 20 days or more) for consideration in the evaluation of offers pursuant to this paragraph will be applied directly to the price offered. For the purpose of payment, when the prompt payment discount is earned, the full discount will be deducted, otherwise any prompt payment discount in excess of 5% will be considered by the Government as a general discount which the bidder or offeror agrees that the Government will be entitled to regardless of when payment is made.

(b) In connection with any discount offered, time will be computed from date of delivery of the supplies to carrier when delivery and acceptance are at the point of origin, or from date of delivery at destination or port of embarkation when delivery and acceptance are at either of those points, or from the date the correct invoice or voucher is received in the office specified by the Government, if the later date is later than date of delivery. Payment is deemed to be made for the purpose of earning the discount on the date of mailing of the Government check.

B.4. AWARD OF CONTRACT

(a) The contract will be awarded to that responsible offeror whose offer conforming to the

solicitation will result in the lowest overall cost to the Government, price and other factors considered.
(See paragraph B.7.)

(b) The Government reserves the right to reject any or all offers and to waive informalities and minor irregularities in offers received.

(c) The Government may accept any item or group of items of any offer, unless the offeror qualifies his offer by specific limitation. UNLESS OTHERWISE PROVIDED IN THE SCHEDULE, OFFERS MAY BE SUBMITTED FOR ANY QUANTITIES LESS THAN THOSE SPECIFIED; AND THE GOVERNMENT RESERVES THE RIGHT TO MAKE AN AWARD OF ANY ITEM FOR A QUANTITY LESS THAN THE QUANTITY OFFERED AT THE UNIT PRICES OFFERED UNLESS THE OFFEROR SPECIFIES OTHERWISE IN HIS OFFER.

(d) A written award (or Acceptance of Offer) mailed (or otherwise furnished) to the successful offeror within the time for acceptance specified in the offer shall be deemed to result in a binding contract without further action by either party.

The following paragraphs (e) through (h) apply only to the negotiated solicitations:

(e) The Government may accept within the time specified therein, any offer or part thereof, as provided in (c) above, whether or not there are negotiations subsequent to its receipt, unless the offer is withdrawn by written notice received by the Government prior to award. If subsequent negotiations are conducted, they shall not constitute a rejection or counter offer on the part of the Government.

(f) The right is reserved to accept other than the lowest offer and to reject any or all offers.

(g) The Government may award a contract, based on initial offers received, without discussion of such offers. Accordingly, each initial offer should be submitted on the most favorable terms from a price and technical standpoint which the offeror can submit to the Government.

(h) Any financial data submitted with any offer hereunder or any representation concerning facilities or financing will not form a part of any resulting contract; provided, however, that if the resulting contract contains a clause providing for price reduction for defective cost or pricing data, the contract price will be subject to reduction if cost or pricing data furnished hereunder is incomplete, inaccurate, or not current.

B.5. PURCHASE-LEASE OPTION

The Government reserves the right to either purchase the system outright upon date of award, or to lease the system with the option to buy in accordance with Paragraph E.8.10.

B.6. LABOR INFORMATION

General information regarding the requirements of the Walsh-Healey Public Contracts Act (41 U.S.C. 35-45), the Contract Work Standards Act (40 U.S.C. 327-330), and the Service Contract Act of 1965 (41 U.S.C. 351-357) may be obtained from the Department of Labor, Washington, D. C. 20210, or from any regional office of that agency. Requests for information should include the solicitation number, the name and address of the issuing agency, and a description of the supplies or services.

B.7. EVALUATION OF PROPOSALS

Proposals to be acceptable and eligible for evaluation must be prepared in accordance with and comply to the instructions given in this Solicitation Document, including Attachment 3, and must meet all the mandatory requirements set forth in Section F and G of the Solicitation Document. Proposals meeting the mandatory requirements and complying with the provisions of the Standard Form of Contract will be evaluated and award made to that responsible offeror whose proposal is determined to be the lowest overall cost to the Government, price and other factors considered, for the system's life. Cost to the Government includes the offeror's prices (equipment, software and support) over the systems life, assessments for desirable features not satisfactorily proposed and any predetermined in-house expenses for ADPE installation and operation. Residual value will be evaluated for any system(s) where ownership resides with the Government.

B.8. TYPE OF CONTRACT

The contract which may result from the solicitation will be a Firm Fixed Price contract.

B.9. FIXED PRICE OPTIONS

The solicitation is being conducted on the basis that the known requirements exceed the basic contract period (and quantity) to be awarded, but due to the unavailability of funds, the option(s) cannot be exercised at the time of award of the basic contract (although there is a reasonable certainty that funds will be available thereafter to permit exercise of the options); realistic competition for the option periods (and quantity) is impracticable once the initial contract is awarded; and it is in the best interest of the Government to evaluate options in order to eliminate the possibility of a "buy-in". Therefore, to safeguard the integrity of the Government's evaluation and because the Government is required to procure ADPE and related items on the basis of fulfilling systems specifications at the lowest overall cost, subsequent (or additional) as well as initial requirements must be satisfied on a fixed price basis. Since the systems or items to be procured under the solicitation have an expected life of 60 months (hereafter referred as "system Life", or "items Life," as appropriate), and since lowest systems (items) life costs are synonymous with lowest overall costs, the contract resulting from this solicitation must contain options for renewals for subsequent fiscal years throughout the projected systems (items) life at fixed prices, and, if applicable, at fixed prices for all stated optional quantities of supplies or services not included in the initial requirements. Despite the foregoing, offerors are reminded that although the evaluation which will lead to contract award will be based on systems (items) life costs, the exercise of the option(s) is dependent not only on the continued existence of the requirement and the availability of funds, but also on an affirmative determination that such exercise is in the best interest of the Government. Options included in offers submitted in response to this solicitation will be evaluated as follows:

B.9.1. Fixed Prices

To be considered responsive to the solicitation, offerors must offer fixed prices for the initial contract period for the initial system or items being procured. Fixed prices, or prices which can be finitely determined, must be quoted for each separate option renewal period and must remain in effect throughout that period. Where optional quantities are offered, prices must be fixed or finitely determinable.

B.9.2. Evaluation of Prices

Offers will be evaluated for purposes of award by adding the total price of all optional periods and, if applicable, all stated optional quantities to the total price for the initial contract period covering the initial system or items. These prices will be adjusted by the appropriate discount factors shown in Section J of the Solicitation Document. Separate charges, if any, which will incur to the Government should the latter fail to exercise the options, will not be considered in the evaluation, except as stated in B.9.3. below.

B.9.3. Unbalanced Prices

An offer which is unbalanced as to prices for the basic and optional quantities may be rejected. An unbalanced offer is one which is based on prices significantly less than cost for some systems and/or items and prices which are significantly overstated for the other systems and/or items. In determining an offer which is unbalanced as to prices, the Government will evaluate separate charges, if any, which the Government will incur for failure to exercise the options.

B.9.4. Exercise of Options

Evaluation of options will not obligate the Government to exercise the options. Offers which do not include fixed or determinable systems (items) life prices cannot be evaluated for the total requirement and will be rejected. Offers which meet the mandatory requirements will be evaluated on the basis of lowest overall cost to the Government, including all stated options. The above notwithstanding, award will be made subject to the type of funds available. See Section E, of the Contract for the applicable contract provisions.

B.9.5. Separate Charges

Separate charges, in any form are not solicited. Offers containing any charges for discontinuance, termination or failure to exercise any option are not solicited and will be rejected.

B.10. Alternate Proposals

Offers may submit more than one proposal, each of which must satisfy the mandatory requirements of the solicitation, including any Benchmark Demonstrations, in order to be considered. As a minimum, one of the proposals submitted must be complete. The alternate proposal(s) may be in an abbreviated form following the same section format, but providing only those sections which differ in any way from those contained in the original proposal. Each proposal will include cost tables indicating the final proposal.

Each proposal will include cost tables indicating the complete range of pricing options. In the case of price/cost options for a given configuration, an alternate proposal will not be required. If alternate

proposals are submitted, such alternatives will be clearly labeled and identified on the cover page of each separate document. The reason for each alternate and its comparative benefits shall be explained. Each proposal submitted will be evaluated on its own merits.

B.11. Unnecessarily Elaborate Proposals

Unnecessarily elaborate brochures or other presentations beyond that sufficient to present a complete and effective proposal are not desired. Elaborate art work, expensive paper and bindings and expensive visual and other presentation aids are neither necessary nor wanted.

B.12. Incurring Costs

The Contracting Officer is the only person who can legally obligate the Government for the expenditure of public funds. Costs shall not be incurred by recipients of the Solicitation Document in anticipation of receiving direct reimbursement from the Government.

B.13. Site Inspection

Offerors may inspect the site(s) where services are to be performed to satisfy themselves as to all general and local conditions that may affect the cost and performance of the Contract to the extent that such information is reasonably obtainable. Prior to each visit, however, written consent must be obtained from the issuing office. In no event will such a failure to inspect the site constitute grounds for a claim after award of the Contract.

B.14. Listing of Employment Openings for Veterans

Offerors should note that the Solicitation Document includes a provision requiring the listing of employment openings with the local office of the State Employment Service system where a contract award is for \$10,000 or more.

SECTION C - GENERAL PROVISIONS

- C.1. DEFINITIONS
- C.2. CHANGES
- C.3. EXTRAS
- C.4. VARIATION IN QUANTITY
- C.5. INSPECTION
- C.6. RESPONSIBILITY FOR SUPPLIES
- C.7. PAYMENTS
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- C.9. ADDITIONAL BOND SECURITY
- C.10. EXAMINATION OF RECORDS BY COMPTROLLER GENERAL
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SECTION C-GENERAL PROVISIONS

- C.18. EQUAL OPPORTUNITY
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- C.29. PRIVACY

GENERAL PROVISIONS

(Supply Contract)

1. DEFINITIONS

As used throughout this contract, the following terms shall have the meaning set forth below:

- (a) The term "head of the agency" or "Secretary" as used herein means the Secretary, the Under Secretary, any Assistant Secretary, or any other head or assistant head of the executive or military department or other Federal agency; and the term "his duly authorized representative" means any person or persons or board (other than the Contracting Officer) authorized to act for the head of the agency or the Secretary.
- (b) The term "Contracting Officer" means the person executing this contract on behalf of the Government, and any other officer or civilian employee who is a properly designated Contracting Officer; and the term includes, except as otherwise provided in this contract, the authorized representative of a Contracting Officer acting within the limits of his authority.
- (c) Except as otherwise provided in this contract, the term "subcontracts" includes purchase orders under this contract.

2. CHANGES

The Contracting Officer may at any time, by a written order, and without notice to the sureties, make changes, within the general scope of this contract, in any one or more of the following: (i) Drawings, designs, or specifications, where the supplies to be furnished are to be specially manufactured for the Government in accordance therewith; (ii) method of shipment or packing; and (iii) place of delivery. If any such change causes an increase or decrease in the cost of, or the time required for, the performance of any part of the work under this contract, whether changed or not changed by any such order, an equitable adjustment shall be made in the contract price or delivery schedule, or both, and the contract shall be modified in writing accordingly. Any claim by the Contractor for adjustment under this clause must be asserted within 30 days from the date of receipt by the Contractor of the notification of change: *Provided, however*, That the Contracting Officer, if he decides that the facts justify such action, may receive and act upon any such claim asserted at any time prior to final payment under this contract. Where the cost of property made obsolete or excess as a result of a change is included in the Contractor's claim for adjustment, the Contracting Officer shall have the right to prescribe the manner of disposition of such property. Failure to agree to any adjustment shall be a dispute concerning a question of fact within the meaning of the clause of this contract entitled "Disputes." However, nothing in this clause shall excuse the Contractor from proceeding with the contract as changed.

3. EXTRAS

Except as otherwise provided in this contract, no payment for extras shall be made unless such extras and the price therefor have been authorized in writing by the Contracting Officer.

4. VARIATION IN QUANTITY

No variation in the quantity of any item called for by this contract will be accepted unless such variation has been caused by conditions of loading, shipping, or packing, or allowances in manufacturing processes, and then only to the extent, if any, specified elsewhere in this contract.

5. INSPECTION

- (a) All supplies (which term throughout this clause includes

without limitation raw materials, components, intermediate assemblies, and end products) shall be subject to inspection and test by the Government, to the extent practicable at all times and places including the period of manufacture, and in any event prior to acceptance.

- (b) In case any supplies or lots of supplies are defective in material or workmanship or otherwise not in conformity with the requirements of this contract, the Government shall have the right either to reject them (with or without instructions as to their disposition) or to require their correction. Supplies or lots of supplies which have been rejected or required to be corrected shall be removed or, if permitted or required by the Contracting Officer, corrected in place by and at the expense of the Contractor promptly after notice, and shall not thereafter be tendered for acceptance unless the former rejection or requirement of correction is disclosed. If the Contractor fails promptly to remove such supplies or lots of supplies which are required to be removed, or promptly to replace or correct such supplies or lots of supplies, the Government either (i) may by contract or otherwise replace or correct such supplies and charge to the Contractor the cost occasioned the Government thereby, or (ii) may terminate this contract for default as provided in the clause of this contract entitled "Default." Unless the Contractor corrects or replaces such supplies within the delivery schedule, the Contracting Officer may require the delivery of such supplies at a reduction in price which is equitable under the circumstances. Failure to agree to such reduction of price shall be a dispute concerning a question of fact within the meaning of the clause of this contract entitled "Disputes."

- (c) If any inspection or test is made by the Government on the premises of the Contractor or a subcontractor, the Contractor without additional charge shall provide all reasonable facilities and assistance for the safety and convenience of the Government inspectors in the performance of their duties. If Government inspection or test is made at a point other than the premises of the Contractor or a subcontractor, it shall be at the expense of the Government except as otherwise provided in this contract: *Provided*, That in case of rejection the Government shall not be liable for any reduction in value of samples used in connection with such inspection or test. All inspections and tests by the Government shall be performed in such a manner as not to unduly delay the work. The Government reserves the right to charge to the Contractor any additional cost of Government inspection and test when supplies are not ready at the time such inspection and test is requested by the Contractor or when reinspection or retest is necessitated by prior rejection. Acceptance or rejection of the supplies shall be made as promptly as practicable after delivery, except as otherwise provided in this contract; but failure to inspect and accept or reject supplies shall neither relieve the Contractor from responsibility for such supplies as are not in accordance with the contract requirements nor impose liability on the Government therefor.

- (d) The inspection and test by the Government of any supplies or lots thereof does not relieve the Contractor from any responsibility regarding defects or other failures to meet the contract requirements which may be discovered prior to acceptance. Except as otherwise provided in this contract, acceptance shall be conclusive except as regards latent defects, fraud, or such gross mistakes as amount to fraud.

- (e) The Contractor shall provide and maintain an inspection system acceptable to the Government covering the supplies hereunder. Records of all inspection work by the Contractor shall be kept complete and available to the Government during

the performance of this contract and for such longer period as may be specified elsewhere in this contract.

6. RESPONSIBILITY FOR SUPPLIES

Except as otherwise provided in this contract, (i) the Contractor shall be responsible for the supplies covered by this contract until they are delivered at the designated delivery point, regardless of the point of inspection; (ii) after delivery to the Government at the designated point and prior to acceptance by the Government or rejection and giving notice thereof by the Government, the Government shall be responsible for the loss or destruction of or damage to the supplies only if such loss, destruction, or damage results from the negligence of officers, agents, or employees of the Government acting within the scope of their employment; and (iii) the Contractor shall bear all risks as to rejected supplies after notice of rejection, except that the Government shall be responsible for the loss, or destruction of, or damage to the supplies only if such loss, destruction or damage results from the gross negligence of officers, agents, or employees of the Government acting within the scope of their employment.

7. PAYMENTS

The Contractor shall be paid, upon the submission of proper invoices or vouchers, the prices stipulated herein for supplies delivered and accepted or services rendered and accepted, less deductions, if any, as herein provided. Unless otherwise specified, payment will be made on partial deliveries accepted by the Government when the amount due on such deliveries so warrants; or, when requested by the Contractor, payment for accepted partial deliveries shall be made whenever such payment would equal or exceed either \$1,000 or 50 percent of the total amount of this contract.

8. ASSIGNMENT OF CLAIMS

(a) Pursuant to the provisions of the Assignment of Claims Act of 1940, as amended (31 U.S.C. 203, 41 U.S.C. 15), if this contract provides for payments aggregating \$1,000 or more, claims for moneys due or to become due the Contractor from the Government under this contract may be assigned to a bank, trust company, or other financing institution, including any Federal lending agency, and may thereafter be further assigned and reassigned to any such institution. Any such assignment or reassignment shall cover all amounts payable under this contract and not already paid, and shall not be made to more than one party, except that any such assignment or reassignment may be made to one party as agent or trustee for two or more parties participating in such financing. Unless otherwise provided in this contract, payments to an assignee of any moneys due or to become due under this contract shall not, to the extent provided in said Act, as amended, be subject to reduction or setoff. (The preceding sentence applies only if this contract is made in time of war or national emergency as defined in said Act and is with the Department of Defense, the General Services Administration, the Energy Research and Development Administration, the National Aeronautics and Space Administration, the Federal Aviation Administration, or any other department or agency of the United States designated by the President pursuant to Clause 4 of the proviso of section 1 of the Assignment of Claims Act of 1940, as amended by the Act of May 15, 1961, 65 Stat. 41.)

(b) In no event shall copies of this contract or of any plans, specifications, or other similar documents relating to work under this contract, if marked "Top Secret," "Secret," or "Confidential," be furnished to any assignee of any claim arising under this contract or to any other person not entitled to receive the same. However, a copy of any part or all of this contract so marked may be furnished, or any information contained therein may be disclosed, to such assignee upon the prior written authorization of the Contracting Officer.

9. ADDITIONAL BOND SECURITY

If any surety upon any bond furnished in connection with this contract becomes unacceptable to the Government or if any such

surety fails to furnish reports as to his financial condition from time to time as requested by the Government, the Contractor shall promptly furnish such additional security as may be required from time to time to protect the interests of the Government and of persons supplying labor or materials in the prosecution of the work contemplated by this contract.

10. EXAMINATION OF RECORDS BY COMPTROLLER GENERAL

(a) This clause is applicable if the amount of this contract exceeds \$10,000 and was entered into by means of negotiation, including small business restricted advertising, but is not applicable if this contract was entered into by means of formal advertising.

(b) The Contractor agrees that the Comptroller General of the United States or any of his duly authorized representatives shall, until the expiration of 3 years after final payment under this contract or such lesser time specified in either Appendix M of the Armed Services Procurement Regulation or the Federal Procurement Regulations Part 1-20, as appropriate, have access to and the right to examine any directly pertinent books, documents, papers, and records of the Contractor involving transactions related to this contract.

(c) The Contractor further agrees to include in all his subcontracts hereunder a provision to the effect that the subcontractor agrees that the Comptroller General of the United States or any of his duly authorized representatives shall, until the expiration of 3 years after final payment under the subcontract or such lesser time specified in either Appendix M of the Armed Services Procurement Regulation or the Federal Procurement Regulations Part 1-20, as appropriate, have access to and the right to examine any directly pertinent books, documents, papers, and records of such subcontractor, involving transactions related to the subcontract. The term "subcontract" as used in this clause excludes (1) purchase orders not exceeding \$10,000 and (2) subcontracts or purchase orders for public utility services at rates established for uniform applicability to the general public.

(d) The periods of access and examination described in (b) and (c), above, for records which relate to (1) appeals under the "Disputes" clause of this contract, (2) litigation or the settlement of claims arising out of the performance of this contract, or (3) costs and expenses of this contract as to which exception has been taken by the Comptroller General or any of his duly authorized representatives, shall continue until such appeals, litigation, claims, or exceptions have been disposed of.

11. DEFAULT

(a) The Government may, subject to the provisions of paragraph (c) below, by written notice of default to the Contractor, terminate the whole or any part of this contract in any one of the following circumstances:

(i) If the Contractor fails to make delivery of the supplies or to perform the services within the time specified herein or any extension thereof; or

(ii) If the Contractor fails to perform any of the other provisions of this contract, or so fails to make progress as to endanger performance of this contract in accordance with its terms, and in either of these two circumstances does not cure such failure within a period of 10 days (or such longer period as the Contracting Officer may authorize in writing) after receipt of notice from the Contracting Officer specifying such failure.

(b) In the event the Government terminates this contract in whole or in part as provided in paragraph (a) of this clause, the Government may procure, upon such terms and in such manner as the Contracting Officer may deem appropriate, supplies or services similar to those so terminated, and the Contractor shall be liable to the Government for any excess costs for such similar supplies or services: *Provided*, That the Contractor shall continue the performance of this contract to the extent not terminated under the provisions of this clause.

(c) Except with respect to defaults of subcontractors, the

Contractor shall not be liable for any excess costs if the failure to perform the contract arises out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but are not restricted to, acts of God or of the public enemy, acts of the Government in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather; but in every case the failure to perform must be beyond the control and without the fault or negligence of the Contractor. If the failure to perform is caused by the default of a subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor, and without the fault or negligence of either of them, the Contractor shall not be liable for any excess costs for failure to perform, unless the supplies or services to be furnished by the subcontractor were obtainable from other sources in sufficient time to permit the Contractor to meet the required delivery schedule.

(d) If this contract is terminated as provided in paragraph (a) of this clause, the Government, in addition to any other rights provided in this clause, may require the Contractor to transfer title and deliver to the Government, in the manner and to the extent directed by the Contracting Officer, (i) any completed supplies, and (ii) such partially completed supplies and materials, parts, tools, dies, jigs, fixtures, plans, drawings, information, and contract rights (hereinafter called "manufacturing materials") as the Contractor has specifically produced or specifically acquired for the performance of such part of this contract as has been terminated; and the Contractor shall, upon direction of the Contracting Officer, protect and preserve property in possession of the Contractor in which the Government has an interest. Payment for completed supplies delivered to and accepted by the Government shall be at the contract price. Payment for manufacturing materials delivered to and accepted by the Government and for the protection and preservation of property shall be in an amount agreed upon by the Contractor and Contracting Officer; failure to agree to such amount shall be a dispute concerning a question of fact within the meaning of the clause of this contract entitled "Disputes." The Government may withhold from amounts otherwise due the Contractor for such completed supplies or manufacturing materials such sum as the Contracting Officer determines to be necessary to protect the Government against loss because of outstanding liens or claims of former lien holders.

(e) If, after notice of termination of this contract under the provisions of this clause, it is determined for any reason that the Contractor was not in default under the provisions of this clause, or that the default was excusable under the provisions of this clause, the rights and obligations of the parties shall, if the contract contains a clause providing for termination for convenience of the Government, be the same as if the notice of termination had been issued pursuant to such clause. If, after notice of termination of this contract under the provisions of this clause, it is determined for any reason that the Contractor was not in default under the provisions of this clause, and if this contract does not contain a clause providing for termination for convenience of the Government, the contract shall be equitably adjusted to compensate for such termination and the contract modified accordingly; failure to agree to any such adjustment shall be a dispute concerning a question of fact within the meaning of the clause of this contract entitled "Disputes."

(f) The rights and remedies of the Government provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this contract.

(g) As used in paragraph (c) of this clause, the terms "subcontractor" and "subcontractors" mean subcontractor(s) at any tier.

12. DISPUTES

(a) Except as otherwise provided in this contract, any dispute concerning a question of fact arising under this contract which is not disposed of by agreement shall be decided by the Contract-

ing Officer, who shall reduce his decision to writing and mail or otherwise furnish a copy thereof to the Contractor. The decision of the Contracting Officer shall be final and conclusive unless, within 30 days from the date of receipt of such copy, the Contractor mails or otherwise furnishes to the Contracting Officer a written appeal addressed to the Secretary. The decision of the Secretary or his duly authorized representative for the determination of such appeals shall be final and conclusive unless determined by a court of competent jurisdiction to have been fraudulent, or capricious, or arbitrary, or so grossly erroneous as necessarily to imply bad faith, or not supported by substantial evidence. In connection with any appeal proceeding under this clause, the Contractor shall be afforded an opportunity to be heard and to offer evidence in support of its appeal. Pending final decision of a dispute hereunder, the Contractor shall proceed diligently with the performance of the contract and in accordance with the Contracting Officer's decision.

(b) This "Disputes" clause does not preclude consideration of law questions in connection with decisions provided for in paragraph (a) above: *Provided*, That nothing in this contract shall be construed as making final the decision of any administrative official, representative, or board on a question of law.

13. NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT

The provisions of this clause shall be applicable only if the amount of this contract exceeds \$10,000.

(a) The Contractor shall report to the Contracting Officer, promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this contract of which the Contractor has knowledge.

(b) In the event of any claim or suit against the Government on account of any alleged patent or copyright infringement arising out of the performance of this contract or out of the use of any supplies furnished or work or services performed hereunder, the Contractor shall furnish to the Government, when requested by the Contracting Officer, all evidence and information in possession of the Contractor pertaining to such suit or claim. Such evidence and information shall be furnished at the expense of the Government except where the Contractor has agreed to indemnify the Government.

14. BUY AMERICAN ACT

(a) In acquiring end products, the Buy American Act (41 U.S. Code 10 a-d) provides that the Government give preference to domestic source end products. For the purpose of this clause:

(i) "Components" means those articles, materials, and supplies, which are directly incorporated in the end products;

(ii) "End products" means those articles, materials, and supplies, which are to be acquired under this contract for public use; and

(iii) A "domestic source end product" means (A) an unmanufactured end product which has been mined or produced in the United States and (B) an end product manufactured in the United States if the cost of the components thereof which are mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. For the purposes of this (a) (iii) (B), components of foreign origin of the same type or kind as the products referred to in (b) (ii) or (iii) of this clause shall be treated as components mined, produced, or manufactured in the United States.

(b) The Contractor agrees that there will be delivered under this contract only domestic source end products, except end products:

(i) Which are for use outside the United States;

(ii) Which the Government determines are not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality;

(iii) As to which the Secretary determines the domestic preference to be inconsistent with the public interest; or

(iv) As to which the Secretary determines the cost to the Government to be unreasonable.
(The foregoing requirements are administered in accordance with Executive Order No. 10582, dated December 17, 1954.)

15. CONVICT LABOR

In connection with the performance of work under this contract, the Contractor agrees not to employ any person undergoing sentence of imprisonment at hard labor except as provided by Public Law 89-176, September 10, 1965 (18 U.S.C. 4082(c)(2)) and Executive Order 11755, December 29, 1973.

16. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT— OVERTIME COMPENSATION

This contract, to the extent that it is of a character specified in the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-333), is subject to the following provisions and to all other applicable provisions and exceptions of such Act and the regulations of the Secretary of Labor thereunder.

(a) Overtime requirements. No Contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, apprentices, trainees, watchmen, and guards shall require or permit any laborer, mechanic, apprentice, trainee, watchman, or guard in any workweek in which he is employed on such work to work in excess of eight hours in any calendar day or in excess of forty hours in such workweek on work subject to the provisions of the Contract Work Hours and Safety Standards Act unless such laborer, mechanic, apprentice, trainee, watchman, or guard receives compensation at a rate not less than one and one-half times his basic rate of pay for all such hours worked in excess of eight hours in any calendar day or in excess of forty hours in such workweek, whichever is the greater number of overtime hours.

(b) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the provisions of paragraph (a), the Contractor and any subcontractor responsible therefor shall be liable to any affected employee for his unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, apprentice, trainee, watchman, or guard employed in violation of the provisions of paragraph (a) in the sum of \$10 for each calendar day on which such employee was required or permitted to be employed on such work in excess of eight hours or in excess of his standard workweek of forty hours without payment of the overtime wages required by paragraph (a).

(c) Withholding for unpaid wages and liquidated damages. The Contracting Officer may withhold from the Government Prime Contractor, from any moneys payable on account of work performed by the Contractor or subcontractor, such sums as may administratively be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the provisions of paragraph (b).

(d) Subcontracts. The Contractor shall insert paragraphs (a) through (d) of this clause in all subcontracts, and shall require their inclusion in all subcontracts of any tier.

(e) Records. The Contractor shall maintain payroll records containing the information specified in 29 CFR 516.2(a). Such records shall be preserved for three years from the completion of the contract.

17. WALSH-HEALEY PUBLIC CONTRACTS ACT

If this contract is for the manufacture or furnishing of materials, supplies, articles, or equipment in an amount which exceeds or may exceed \$10,000 and is otherwise subject to the Walsh-Healey Public Contracts Act, as amended (41 U.S. Code 35-45), there are hereby incorporated by reference all representations and stipulations required by said Act and regulations issued thereunder by the Secretary of Labor, such representations and stipulations being subject to all applicable rulings and

interpretations of the Secretary of Labor which are now or may hereafter be in effect.

18. EQUAL OPPORTUNITY

(The following clause is applicable unless this contract is exempt under the rules, regulations, and relevant orders of the Secretary of Labor (41 CFR, ch. 60).)

During the performance of this contract, the Contractor agrees as follows:

(a) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Contracting Officer setting forth the provisions of this Equal Opportunity clause.

(b) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(c) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency Contracting Officer, advising the labor union or workers' representative of the Contractor's commitments under this Equal Opportunity clause, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(d) The Contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, as amended by Executive Order No. 11375 of October 13, 1967, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(e) The Contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, as amended by Executive Order No. 11375 of October 13, 1967, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(f) In the event of the Contractor's noncompliance with the Equal Opportunity clause of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended, in whole or in part, and the Contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, as amended by Executive Order No. 11375 of October 13, 1967, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, as amended by Executive Order No. 11375 of October 13, 1967, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(g) The Contractor will include the provisions of paragraphs (a) through (g) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order No. 11246 of September 24, 1965, as amended by Executive Order No. 11375 of October 13, 1967, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: *Provided, however, That in the event the Contractor becomes involved in,*

or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

19. OFFICIALS NOT TO BENEFIT

No member of or delegate to Congress, or resident Commissioner, shall be admitted to any share or part of this contract, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

20. COVENANT AGAINST CONTINGENT FEES

The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty the Government shall have the right to annul this contract without liability or in its discretion to deduct from the contract price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

21. UTILIZATION OF SMALL BUSINESS CONCERNS

(a) It is the policy of the Government as declared by the Congress that a fair proportion of the purchases and contracts for supplies and services for the Government be placed with small business concerns.

(b) The Contractor agrees to accomplish the maximum amount of subcontracting to small business concerns that the Contractor finds to be consistent with the efficient performance of this contract.

22. UTILIZATION OF LABOR SURPLUS AREA CONCERNS

(a) It is the policy of the Government to award contracts to labor surplus area concerns that (1) have been certified by the Secretary of Labor (hereafter referred to as certified-eligible concerns with first or second preferences) regarding the employment of a proportionate number of disadvantaged individuals and have agreed to perform substantially (i) in or near sections of concentrated unemployment or underemployment or in persistent or substantial labor surplus areas or (ii) in other areas of the United States, respectively, or (2) are noncertified concerns which have agreed to perform substantially in persistent or substantial labor surplus areas, where this can be done consistent with the efficient performance of the contract and at prices no higher than are obtainable elsewhere. The Contractor agrees to use his best efforts to place his subcontracts in accordance with this policy.

(b) In complying with paragraph (a) of this clause and with paragraph (b) of the clause of this contract entitled "Utilization of Small Business Concerns" the Contractor in placing his subcontracts shall observe the following order of preference: (1) Certified-eligible concerns with a first preference which are also

small business concerns; (2) other certified-eligible concerns with a first preference; (3) certified-eligible concerns with a second preference which are also small business concerns; (4) other certified-eligible concerns with a second preference; (5) persistent or substantial labor surplus area concerns which are also small business concerns; (6) other persistent or substantial labor surplus area concerns; and (7) small business concerns which are not labor surplus area concerns.

23. UTILIZATION OF MINORITY BUSINESS ENTERPRISES

(a) It is the policy of the Government that minority business enterprises shall have the maximum practicable opportunity to participate in the performance of Government contracts.

(b) The Contractor agrees to use his best efforts to carry out this policy in the award of his subcontracts to the fullest extent consistent with the efficient performance of this contract. As used in this contract, the term "minority business enterprise" means a business, at least 50 percent of which is owned by minority group members or, in case of publicly-owned businesses, at least 51 percent of the stock of which is owned by minority group members. For the purposes of this definition, minority group members are Negroes, Spanish-speaking American persons, American-Orientals, American-Indians, American-Eskimos, and American Aleuts. Contractors may rely on written representations by subcontractors regarding their status as minority business enterprises in lieu of an independent investigation.

24. PRICING OF ADJUSTMENTS

When costs are a factor in any determination of a contract price adjustment pursuant to the Changes clause or any other provision of this contract, such costs shall be in accordance with the contract cost principles and procedures in Part 1-15 of the Federal Procurement Regulations (41 CFR 1-15) or Section XV of the Armed Services Procurement Regulation, as applicable, which are in effect on the date of this contract.

25. PAYMENT OF INTEREST ON CONTRACTORS' CLAIMS

(a) If an appeal is filed by the Contractor from a final decision of the Contracting Officer under the Disputes clause of this contract, denying a claim arising under the contract, simple interest on the amount of the claim finally determined owed by the Government shall be payable to the Contractor. Such interest shall be at the rate determined by the Secretary of the Treasury pursuant to Public Law 92-41, 35 Stat. 97, from the date the Contractor furnishes to the Contracting Officer his written appeal under the Disputes clause of this contract, to the date of (1) a final judgment by a court of competent jurisdiction, or (2) mailing to the Contractor of a supplemental agreement for execution either confirming completed negotiations between the parties or carrying out a decision of a board of contract appeals.

(b) Notwithstanding (a), above, (1) interest shall be applied only from the date payment was due, if such date is later than the filing of appeal, and (2) interest shall not be paid for any period of time that the Contracting Officer determines the Contractor has unduly delayed in pursuing his remedies before a board of contract appeals or a court of competent jurisdiction.

SECTION C - GENERAL PROVISIONS

Articles C.5., and C.11. of Standard Form 32 are modified and Articles C.26., C.27., C.28., and C.29. are added as additional articles of the General Provisions as follows:

C.5. INSPECTION

Articles C.5(a), (b), (c) and (e) are not applicable to commercial items that are subject to a 30 day acceptance test pursuant to SECTION E, paragraph E.6., STANDARD OF PERFORMANCE AND ACCEPTANCE OF DATA PROCESSING SYSTEM.

C.11. DEFAULT

Articles C.11(f) and C.11(g) of Standard Form 32, General Provisions (Supply Contract), are redesignated as Articles C.11(g) and C.11(h) and the following is inserted as Articles C.11(f);

(f)(i) In the event the Government exercises its right of termination as provided in paragraph (a) above, the Contractor shall be liable to the Government for excess costs as provided in paragraph (b) above and, in addition, for liquidated damages, in the amount set forth elsewhere in this contract, as fixed, agreed, and liquidated damages for each calendar day of delay, until such time as the Government may reasonably obtain delivery or performance of similar supplies or services.

(ii) If the contractor is not so terminated, notwithstanding delay as provided in paragraph (a) above, the Contractor shall continue performance and be liable to the Government for such liquidated damages for each calendar day of delay until the supplies are delivered or services performed.

(iii) The Contractor shall not be liable for liquidated damages for delays due to causes which would relieve him from liability for excess costs as provided in paragraph (c) of this clause.

C.11.1. *Waiver of Delivery Schedule*

None of the following shall be regarded as an extension, waiver, or abandonment of the delivery schedule or a waiver of the Government's right to terminate for default: (i) Delay by the Government in terminating for default; (ii) Acceptance of delinquent deliveries; and (iii) Acceptance or approval of samples submitted either after default in delivery or in sufficient time for the contractor to meet the delivery schedule.

Any assistance rendered to the contractor on this contract or acceptance by the Government of delinquent goods or services hereunder, will be solely for the purpose of mitigating damages, and is not to be construed as an intention on the part of the Government to condone any delinquency, or as a waiver of any rights the Government may have under subject contract.

C.26. LISTING OF EMPLOYMENT OPENINGS

(This clause is applicable pursuant to 41 CFR 50-250 if this contract is for \$10,000 or more).

(a) The Contractor agrees, in order to provide special emphasis to the employment of qualified disabled veterans and veterans of the Vietnam era, that all suitable employment openings of the Contractor which exist at the time of the execution of this contract and those which occur during the performance of this contract, including those not generated by this contract and including those occurring at an establishment other than the one wherein the contract is being performed but excluding those of independently operated corporate affiliates, shall be offered for listing at an appropriate local office of the State employment service system wherein the opening occurs and to provide such reports to such local office regarding employment openings and hires as may be required: Provided, that if this contract is for less than \$10,000 or if it is with a State or local government the reports set forth in paragraphs (c) and (d) are not required.

(b) Listing of employment openings with the employment service system pursuant to this clause shall be made at least concurrently with the use of any other recruitment service or effort and shall involve the normal obligations which attach to the placing of a bona fide job order, including the acceptance of referrals of veterans and non-veterans. This listing of employment openings does not require the hiring of any particular job applicant or from any particular group of job applicants, and nothing herein is intended to relieve the Contractor from any requirements in any statutes, Executive orders, or regulations regarding nondiscrimination in employment.

(c) The reports required by paragraph (a) of this clause shall include, but not be limited to, periodic reports which shall be filed at least quarterly with the appropriate local office or, where the Contractor has more than one establishment in a State, with the central office of the State employment services. Such reports shall indicate for each establishment (i) the number of individuals who were hired during the reporting period, (ii) the number of those hired who were disabled veterans, and (iii) the number of those hired who were non-disabled veterans of the Vietnam era. The Contractor shall submit a report within 30 days after the end of each reporting period wherein any performance is made under this contract. The Contractor shall maintain copies of the reports submitted until the expiration of 1 year after final payment under the contract, during which time they shall be made available, upon request, for examination by any authorized representatives of the Contracting Officer or of the Secretary of Labor.

(d) Whenever the Contractor becomes contractually bound by the listing provisions of this clause, he shall advise the employment service system in each State wherein he has establishments of the name and location of each such establishment in the state. As long as the Contractor is contractually bound to these provisions and has so advised the State employment system, there is no need to advise the State system of subsequent contracts. The Contractor may advise the State system when it is no longer bound by this contract clause.

(e) This clause does not apply to the listing of employment openings which occur and are filed outside of the 50 States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, and the Virgin Islands.

(f) This clause does not apply to openings which the Contractor proposes to fill from within his own organization or to fill pursuant to a customary and traditional employer-union hiring arrangement. This exclusion does not apply to a particular openings once an employer decides to consider applicants outside of his own organization or employer-union arrangement for that opening.

(g) As used in this clause:

(1) "All suitable employment openings" includes, but is not limited to, openings which occur in the following job categories: Production and nonproduction; technical; and executive, administrative, and professional openings which are compensated on a salary basis of less than \$18,000 per year. The term includes full-time employment, temporary employment of more than 3 days duration,

and part-time employment. It does not include openings which the Contractor proposes to fill from within his own organization or to fill pursuant to a customary and traditional employer-union hiring arrangement.

(2) "Appropriate office of the state employment service system" means the local office of the Federal-State national system of public employment offices with assigned responsibility for serving the area of the establishment where the employment openings is to be filled, including the District of Columbia, the Commonwealth of Puerto Rico, Guam, and the Virgin Islands.

(3) "Openings which the Contractor proposes to fill from within his own organization" means employment openings for which no consideration will be given to persons outside the Contractor's own organization (including any affiliates, subsidiaries, and parent companies), and includes any openings which the Contractor proposes to fill from regularly established "recall" or "rehire" lists.

(4) "Openings which the Contractor proposes **** to fill pursuant to a customary and traditional employer-union hiring arrangement" means employment openings for which no consideration will be given to persons outside of a special hiring arrangement, including openings which the Contractor proposes to fill from union halls, which is part of the customary and traditional hiring relationship which exists between the Contractor and representatives of his employees.

(5) "Disabled veteran" means a person entitled to disability compensation under laws administered by the Veterans Administration for a disability rated at 30 per centum or more, or a person whose discharge or release from active duty was for a disability incurred or aggravated in line of duty.

(6) "Veteran of the Vietnam era" means a person (A) who (i) served on active duty with the Armed Forces for a period of more than 180 days, any part of which occurred after August 5, 1964, and was discharged or released therefrom with other than a dishonorable discharge, or (ii) was discharged or released from active duty for service-connected disability if any part of such duty was performed after August 3, 1964, and (B) who was so discharged or released within the 48 months preceding his application for employment covered by this clause.

(h) If any disabled veteran or veteran of the Vietnam era believes that the Contractor (or any first-tier subcontractor) has failed or refuses to comply with the provisions of this contract clause relating to giving special emphasis in employment to veterans, such veteran may file a complaint with the veterans' employment representative at a local State employment service office who will attempt to informally resolve the complaint and then refer the complaint with a report on the attempt to resolve the matter to the State office of the Veterans' Employment Service of the Department of Labor. Such complaint shall then be promptly referred through the Regional Manpower Administrator to the Secretary of Labor who shall investigate such complaint and shall take such action thereon as the facts and circumstances warrant consistent with the terms of this contract and the laws and regulations applicable thereto.

(i) The Contractor agrees to place this clause (excluding this paragraph (i) in any subcontract directly under this contract.

C.27. EMPLOYMENT OF THE HANDICAPPED

(This clause applies to all nonexempt contracts and subcontracts which exceed \$2,500 as follows: (1) Part A applies to contracts and subcontracts which provide for performance in less than 90 days (2) Parts A and B apply to contracts and subcontracts which provide for performance in 90 days or more and the amount of the contract or subcontract is less than \$500,000, and (3) Parts A, B, and C apply to contracts and subcontracts which provide for performance in 90 days or more and the amount of the contract or subcontract is \$500,000 or more.)

PART A

(a) The Contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap in regard to any position for which the employee or applicant for employment is qualified. The Contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified handicapped individuals without discrimination based upon their physical or mental handicap in all employment practices such as the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising; layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

(b) The Contractor agrees that, if a handicapped individual files a complaint with the Contractor that he is not complying with the requirements of the Act, he will (1) investigate the complain and take appropriate action consistent with the requirements of 20 CFR 741.29 and (2) maintain on file for three years, the record regarding the complain and the actions taken.

(c) The Contractor agrees that, if a handicapped individual files a complaint with the Department of Labor that he has not complied with the requirements of the Act, (1) he will cooperate with the Department in its investigation of the complaint, and (2) he will provide all pertinent information regarding his employment practices with respect to the handicapped.

(d) The Contractor agrees to comply with the rules and regulations of the Secretary of Labor in 20 CFR Ch VI, Part 741.

(e) In the event of the Contractor's noncompliance with the requirements of this clause, the contract may be terminated or suspended in whole or in part.

(f) This clause shall be included in all subcontracts over \$2,500.

PART B

(g) The Contractor agrees (1) to establish an affirmative action program, including appropriate procedures consistent with the guidelines and the rules of the Secretary of Labor, which will provide the affirmative action regarding the employment and advancement of the handicapped required by P.L. 93-112, (2) to publish the program in his employee's or personnel handbook or otherwise distribute a copy to all personnel, (3) to review his program on or before March 31 of each year and to make such changes as may be appropriate, and (4) to designate one of his principal officials to be responsible for the establishment and operation of the program.

(h) The Contractor agrees to permit the examination by appropriate contracting agency officials or the Assistant Secretary for Employment Standards or his designee, of pertinent books, documents, papers and records concerning his employment and advancement of the handicapped.

(i) The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be prescribed by the Assistant Secretary for Employment Standards, provided by the contracting officer stating contractor's obligation under the law to take affirmative action to employ and advance in employment qualified handicapped employees and applicants for employment and the rights and remedies available.

(j) The Contractor will notify each labor union of representative of workers with which he has a collective bargaining agreement or other contract understanding, that the Contractor is bound by the terms of section 503 of the Rehabilitation Act, and is committed to take affirmative action to employ and advance in employment physically and mentally handicapped individuals.

PART C

(k) The Contractor agrees to submit a copy of his affirmative action program to the Assistant Secretary for Employment Standards within 90 days after the award to him of a contract or subcontract.

(l) The Contractor agrees to submit a summary report to the Assistant Secretary for Employment Standards, by March 31 of each year during performance of the contract, and by March 31 of the year following completion of the contract, in the form prescribed by the Assistant Secretary, covering employment and complaint experience, accommodations made and all steps taken to effectuate and carry out the commitments set forth in the affirmative action program.

CLEAN AIR AND WATER CLAUSE

(Applicable only if the contract exceeds \$100,000, or the contracting officer has determined that the orders under an indefinite quantity contract in any one year will exceed \$100,000, or a facility to be used has been the subject of a conviction under the Clean Air Act (42 U.S.C. 1857c-8(c)(1)) or the Federal Water Pollution Control Act (33 U.S.C. 1319(d)) and is listed by EPA, or the contract is not otherwise exempt.)

(a) The Contractor agrees as follows:

(1) To comply with all the requirements of section 114 of the Clean Air Act, as amended (42 U.S.C. 1857, et seq., as amended by Public Law 91-604) and section 308 of the Federal Water Pollution Control Act (33 U.S.C. 1251, as amended by Public Law 92-500), respectively, relating to inspection, monitoring, entry, reports, and information, as well as other requirements specified in section 114 and section 308 of the Air Act and the Water Act, respectively, and all regulations and guidelines issued thereunder before the award of this contract.

(2) That no portion of the work required by this prime contract will be performed in a facility listed on the Environmental Protection agency List of Violating Facilities on the date when this contract was awarded unless and until the EPA eliminates the name of such facility or facilities from such listing.

(3) To use his best efforts to comply with clean air standards and clean water standards at the facilities in which the contract is being performed.

(4) To insert the substance of the provisions of this clause in any nonexempt subcontract, including this paragraph (a)(4).

(b) The terms used in this clause have the following meanings:

(1) The term "Air Act" means the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Public Law 91-604).

(2) The term "Water Act" means Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Public Law 92-500).

(3) The term "clean air standards" means any enforceable rules, regulations, guidelines, standards, limitations, orders, controls, prohibitions, or other requirements which are contained in, issued under, or otherwise adopted pursuant to the Air Act or Executive Order 11738, an applicable implementation plan as described in section 110(d) of the Clean Air Act (42 U.S.C. 1857c-5(d)), an approved implementation procedure or plan under section 111(c) or section 111(d), respectively, of the Air Act (42 U.S.C. 1857c-6(c) or (d)), or an approved implementation procedure under section 112(d) of the Air Act (42 U.S.C. 1857c-7(d)).

(4) The term "clean water standards" means any enforceable limitation, control,

condition, prohibition, standards, or other requirement which is promulgated pursuant to the Water Act or contained in a permit issued to a discharger by the Environmental Protection Agency or by a state under an approved program, as authorized by section 402 of the Water Act (33 U.S.C. 1342), or by a local Government to ensure compliance with retreatment regulations as required by section 307 of the Water Act (33 U.S.C. 1317).

(5) The term "compliance" means compliance with clean air or water standards. Compliance shall also mean compliance with a schedule or plan ordered or approved by a court of competent jurisdiction, the Environmental Protection Agency or an air or water pollution control agency in accordance with the requirement of the Air Act or Water Act and regulations issued pursuant thereto.

(6) The term "facility" means any building, plant, installation, structure, mine, vessel, or other floating craft, location, or site of operations, owned leased, or supervised by a contractor, subcontractor, to be utilized in the performance of a contract or subcontract. Where a location or site of operations contains or includes more than one building, a plant installation, or structure, the entire location shall be deemed to be a facility except where the Director, Office of Federal Activities, Environmental Protection Agency, determines that independent facilities are collocated in one geographical area.

C.29. PRIVACY

The following clause is applicable when the statement of work requires the design, development, or operation of a system of records on individuals to accomplish an agency function (see 40 CFR 1-1.337-5)

PRIVACY ACT

(a) The contractor agrees:

(1) To comply with the Privacy Act of 1974 and the rules and regulations issued pursuant to the Act in the design, development, or operation of any system of records on individuals in order to accomplish an agency function when the contract specifically identifies (i) the system or systems of records and (ii) the work to be performed by the contractor in terms of any one or combination of the following: (A) design, (B) development, or (C) operation;

(2) to include the solicitation notification contained in this contract in every solicitation and resulting subcontract and in every subcontract awarded without a solicitation when the statement of work in the proposed subcontract requires the design, development, or operation of a system of records on individuals to accomplish an agency function; and

(3) to include this clause, including this paragraph (3), in all subcontracts awarded pursuant to this contract which require the design, development, or operation of such a system of records.

(b) In the event of violations of the Act, a civil action may be brought against the agency involved where the violation concerns the design, development, or operation of a system of records on individuals to accomplish an agency function, and criminal penalties may be imposed upon the officers or employees of the agency where the violation concerns the operation of a system of records on individuals to accomplish an agency function. For purposes of the Act when the contract is for the operation of a system of records on individuals to accomplish an agency function, the contractor and any employee of the contractor is considered to be an employee of the agency.

(c) The terms used in this clause have the following meanings:

(1) "Operation of a system of records means performance of any of the activities associated with maintaining the system of records including the collection, use, and dissemination of records.

(2) "Record" means any item, collection, or grouping of information about an individual that is maintained by an agency, including, but not limited to, his education, financial transactions, medical history, and criminal or employment history and that contains his name, or the identifying number, symbol, or other identifying particular assigned to the individual.

SECTION D - SUPPLEMENTAL PROVISIONS

- D.1. SCOPE OF CONTRACT
- D.2. FEDERAL, STATE, AND LOCAL TAXES
- D.3. RENEGOTIATION
- D.4. RISK OF LOSS OR DAMAGE
- D.5. SUBCONTRACTING PROGRAMS
- D.6. PATENT INDEMNITY
- D.7. TERMINATION FOR CONVENIENCE OF THE GOVERNMENT

SECTION D - SUPPLEMENTAL PROVISIONS

The provisions stated below supplement those provides in Standard Form 32 as set forth in Section C.

D.1. SCOPE OF CONTRACT

The Contractor shall furnish, as required, the equipment, software, maintenance and other Contractor support services required for the installation and support of all items supplied under this contract. Such equipment, software, maintenance and other Contractor support services shall be supplied in conformance with terms and conditions of this contract.

D.2. FEDERAL, STATE AND LOCAL TAXES

(a) Except as may be otherwise provided in this contract, the contract price includes all applicable federal, State, and local taxes and duties.

(b) Nevertheless, with respect to any Federal excise tax or duty on the transactions or property covered by this contract, if a statute, court decision, written ruling, or regulations takes effect after the contract date, and

(1) Results in the Contractor being required to pay or bear the burden of any such Federal excise tax or duty or increase in the rate thereof which would not otherwise have been payable on such transactions or property, the contract price shall be increased by the amount of such tax or duty or rate increase: Provided, that the Contractor if requested by the Contracting Officer, warrants in writing that no amount for such newly imposed Federal excise tax or duty or rate increase was included in the contract price as a contingency reserve or otherwise; or

(2) Results in the Contractor not being required to pay or bear the burden of, or in his obtaining a refund or drawback of, any such Federal excise tax or duty which would otherwise have been payable on such transactions or property or which was the basis of an increase in the contract price, the contract price shall be decreased by the amount of the relief, refund, or drawback, or that amount shall be paid to the Government, as directed by the Contracting Officer. The contract price shall be similarly decreased if the Contractor, through his fault or negligence or his failure to follow instructions of the Contracting Officer, is required to pay or bear the burden of, or does not obtain a refund or drawback of, any such Federal excise tax or duty.

(c) No adjustment pursuant to paragraph (b) above, will be made under this contract unless the aggregate amount thereof is or may reasonably be expected to be over \$100.

(d) As used in paragraph (b) above, the term "contract date" means the date set for the bid opening, or if this is a negotiated contract, the date of this contract. As to additional supplies or services procured by modification to this contract, the term "contract date" means the date of such modification.

(3) Unless there does not exist any reasonable basis to sustain an exemption, the Government, upon request of the Contractor without further liability, agrees, except as otherwise provided in this contract, to furnish evidence appropriate to establish exemption from any tax, which the Contractor warrants in writing was excluded from the contract price. In addition, the Contracting Officer may furnish evidence to establish exemption from any tax that may, pursuant to this clause, give rise to either an increase or decrease in the contract price. Except as otherwise provided in this contract, evidence appropriate to establish exemption from duties will be furnished only at the discretion of the Contracting Officer.

(f) The Contractor shall promptly notify the Contracting Officer of matters which will result in either an increase or decrease in the contract price, and shall take action with respect thereto as directed by the Contracting Officer.

D.3. RENEGOTIATION

The following renegotiation clause shall apply unless the Government agency is not included in the Renegotiation Act of 1951.

The contract is subject to the Renegotiation Act of 1951, as amended, and shall be deemed to contain the provisions required by Section 104 thereof. The extent of renegotiation will be determined in accordance with regulations under the Act. The Contractor agrees to include this renegotiation clause (including this sentence) in each subcontract made to perform any part of the work or to furnish any materials required for this contract.

D.4. RISK OF LOSS OR DAMAGE

D.4.1. Risk of Loss or Damage - Lease

The Government is relieved of all risks of loss or damage to the equipment during the periods of transportation and installation, and during the entire time the equipment is in the possession of the Government, except for

(i) loss or damage caused by nuclear reaction, nuclear radiation, radioactive contamination, war, insurrection, civil strife, rebellion, weapons of war; or

(ii) negligence on the part of the Government or its agents, provided, however, that the Government shall be relieved of the liability for such risks of loss or damage due to negligence if any commercial customer of the contractor is relieved of such liability under like circumstances.

If the Government is liable for loss or damage of a machine, the Contractor shall have the option to restore the machine to its previous condition at the contractor's then current prices, terms, and conditions, or, if the machine is lost or damaged beyond repair, the Government shall pay the contractor the same price for the machine as the Government would have paid had it purchased the machine on the day prior to loss or damage under the purchase option provisions of this contract. In the event regulations require the retention or destruction of rented storage devices the Government shall pay to the Contractor all costs necessary to replace the storage device or to restore it to good operating condition.

D.4.2. Risk of Loss or Damage - Purchase

The Government is relieved of all risks of loss or damage to the equipment, up to and including the day prior to the first day of a successful performance period, except for

(i) loss of damage caused by nuclear reaction, nuclear radiation, radioactive contamination, war,

insurrection, civil strife, rebellion, weapons of war; or

(ii) negligence on the part of the Government or its agents, provided, however, that the Government shall be relieved of the liability for such risks or damage due to negligence if any commercial customer of the contractor is relieved of such liability under like circumstances.

If the Government is liable for loss or damage of machine, the Contractor shall have the option to restore the machine to its previous condition, in which event the Government shall pay the contractor to perform such restoration at the contractor's then-current prices, terms and conditions; or if the contractor elects not to restore the machine, the Government may, at its own expense restore the machine to its previous condition; provided that, if the machine is lost or damaged beyond repair, the Government shall pay to the contractor the same price for the machine as the Government would have paid had it purchased the machine on the day prior to the loss or damage under the provisions of this contract. This clause shall govern risk of loss or damage, notwithstanding any other provisions of this contract relating to title, payment or ownership.

D.5. SUBCONTRACTING PROGRAMS

The following clauses shall apply to contracts in excess of \$500,000.

D.5.1. Small Business Subcontracting Program

(a) The Contractor agrees to establish and conduct a small business subcontracting program which will enable small business concerns to be considered fairly as subcontractors and suppliers under this contract. In this connection, the Contractor shall --

(1) Designate a liaison officer who will (i) maintain liaison with the Government on small business matters, (ii) supervise compliance with the Utilization of Small Business Concerns clause, and (iii) administer the Contractor's "Small Business Subcontracting Program".

(2) Provide adequate and timely consideration of the potentialities of small business concerns in all "make-or-buy" decisions.

(3) Assure that small business concerns will have an equitable opportunity to compete for subcontracts, particularly by arranging solicitations, time for the preparation of bids, quantities, specifications, and delivery schedules so as to facilitate the participation of small business concerns. Where the Contractor's lists of potential small business subcontractors are excessively long, reasonable effort shall be made to give all such small business concerns an opportunity to compete over a period of time.

(4) Maintain records showing (i) whether each prospective subcontractor is a small business concern, (ii) procedures which have been adopted to comply with the policies set forth in this clause, and (iii) with respect to the letting of any subcontract (including purchase orders) exceeding \$10,000, information substantially as follows:

- a. Whether the award went to large or small business.
- b. Whether less than three or more than two small business concerns were solicited.
- c. The reason for non-solicitation of small business if such was the case.
- d. The reason for small business failure to receive the award if such was the case when small business was solicited.

The records maintained in accordance with (iii) above may be in such form as the Contractor may determine, and the information shall be summarized quarterly and submitted by the purchasing

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department of each individual plant or division to the Contractor's cognizant small business liaison officer. Such quarterly summaries will be considered to be management records only and need not be submitted routinely to the Government; however, records maintained pursuant to this clause will be kept available for review by the Government until the expiration of 1 year after the award of this contract, or for such longer period as may be required by any other clause of this contract or by applicable law or regulation.

(5) Notify the Contracting Officer before soliciting bids or quotations on any subcontract (including purchase orders) in excess of \$10,000 if (i) no small business concern is to be solicited, and (ii) the Contracting Officer's consent to the subcontract (or ratification) is required by a "Subcontracts" clause in this contract. Such notice will state the Contractor's reasons for non-solicitation of small business concerns, and will be given as early in the procurement cycle as possible so that the Contracting Officer may give SBA timely notice to permit SBA a reasonable period to suggest potentially qualified small business concerns through the Contracting Officer. In no case will the procurement action be held up when to do so would, in the Contractor's judgment, delay performance under the contract.

(6) Include the Utilization of Small Business Concerns clause in subcontracts which offer substantial small business subcontracting opportunities.

(7) Cooperate with the Contracting Officer in any studies and surveys of the Contractor's subcontracting procedures and practices that the Contracting Officer may from time to time conduct.

(8) Submit quarterly reports of subcontracting to small business concerns on either Optional Form 61, Small Business Subcontracting Program Quarterly Report of Participating Large Company on Subcontract Commitments to Small Business Concerns, or such other form as may be specified in the contract. Except as otherwise provided in this contract, the reporting requirements of this subparagraph (8) do not apply to small business contractors, small business subcontractors, educational and nonprofit institutions, and contractors or subcontractor for standard commercial items.

(b) A "small business concern" is a concern that meets the pertinent criteria established by the Small Business Administration and set forth in 1-1.701 of the Federal Procurement Regulations.

(c) The Contractor agrees that, in the event he fails to comply with his contractual obligations concerning the small business subcontracting program, this contract may be terminated, in whole or in part, for default.

(d) The Contractor further agrees to insert, in any subcontract hereunder which may exceed \$500,000 and which contains the utilization of Small Business concerns clause, provisions which shall conform substantially to the language of this clause, including this paragraph (d), and to notify the Contracting Officer of the names of such subcontractors.

D.5.2. Labor Surplus Area Subcontracting Program

(a) The Contractor agrees to establish and conduct a program which will encourage labor surplus area concerns to compete for subcontracts within their capabilities. In this connection, the Contractor shall --

(1) Designate a liaison officer who will (i) maintain liaison with duly authorized representatives of the Government on labor surplus area matters, (ii) supervise compliance with the Utilization of Concerns in Labor Surplus Areas clause, and (iii) administer the Contractor's "Labor Surplus Area Subcontracting Program";

(2) Provide adequate and timely consideration of the potentialities of labor surplus area concerns in all "make-or-buy" decisions;

(3) Assure that labor surplus area concerns will have an equitable opportunity to

compete for subcontracts, particularly by arranging solicitations, time for the preparation of bids, quantities, specifications, and delivery schedules so as to facilitate the participation of labor surplus area concerns;

(4) Maintain records showing procedures which have been adopted to comply with the policies set forth in this clause. Records maintained pursuant to this clause will be kept available for review by the Government until the expiration of 1 year after the award of this contract, or for such longer period as may be required by any other clause of this contract or by applicable law or regulations; and

(5) Include the Utilization of Concerns in Labor Surplus Areas clause in subcontracts which offer substantial labor surplus area subcontracting opportunities.

(b) A "labor surplus area concern" is a concern that (1) has been certified by the Secretary of Labor (hereafter referred to as a certified-eligible concern) regarding the employment of a proportionate number of disadvantaged individuals and has agreed to perform substantially in or near sections of concentrated unemployment or underemployment, in persistent or substantial labor surplus areas, or in other areas of the United States or (2) is a noncertified concern which has agreed to perform a substantial proportion of a contract in persistent or substantial labor surplus areas. A certified-eligible concern shall be deemed to have performed a substantial proportion of a contract in or near sections of concentrated unemployment or underemployment, in persistent or substantial labor surplus areas, or in other areas if the costs that the concern will incur on account of manufacturing or production in or near such sections or in such areas (by itself, if a certified concern, or by certified concerns acting as first-tier subcontractors) amount to more than 25 percent of the contract price. A concern shall be deemed to have performed a substantial proportion of a contract in persistent or substantial labor surplus areas (by itself or its first-tier subcontractors) if the costs that the concern will incur on account of production or manufacturing in such areas amount to more than 50 percent of the contract price.

(c) The Contractor further agrees to insert in any subcontract hereunder which may exceed \$500,000 and which contains the Utilization of Concerns in Labor Surplus Areas clause, provisions which shall conform substantially to the language of this clause, including this paragraph (c), and to notify the Contracting Officer of the names of such subcontractors.

D.5.3. Minority Business Enterprises Subcontracting Program

(a) The Contractor agrees to establish and conduct a program which will enable minority business enterprises (as defined in the clause entitled "Utilization of Minority Business Enterprises") to be considered fairly as subcontractors and suppliers under this contract. In this connection, the Contractor shall --

(1) Designate a liaison officer who will administer the Contractor's minority business enterprises program.

(2) Provide adequate and timely consideration of the potentialities of known minority business enterprises in all "make-or-buy" decisions.

(3) Assure that known minority business enterprises will have an equitable opportunity to compete for subcontracts, particularly by arranging solicitations, time for the preparation of bids, quantities, specifications, and delivery schedules so as to facilitate the participation of minority business enterprises.

(4) Maintain records showing (i) procedures which have been adopted to comply with the policies set forth in this clause, including the establishment of a source list of minority business enterprises, (ii) awards to minority business enterprises on the source list, and (iii) specific efforts to identify and award contracts to minority business enterprises.

(5) Include the Utilization of Minority Business Enterprises clause in subcontracts which offer substantial minority business enterprises subcontracting opportunities.

(6) Cooperate with the Contracting Officer in any studies and surveys of the Contractor's minority business enterprises procedures and practices that the Contracting Officer may from time to time conduct.

(7) Submit periodic reports of subcontracting to known minority business enterprises with respect to the records referred to in subparagraph (4), above, in such form and manner and at such time (not more often than quarterly) as the Contracting Officer may prescribe.

(b) The Contractor further agrees to insert, in any subcontract hereunder which may exceed \$500,000 provisions which shall conform substantially to the language of this clause, including this paragraph (b), and to notify the Contracting Officer of the names of such subcontractors.

D.6. PATENT INDEMNITY

If the amount of this contract for supplies or services is in excess of \$5,000, the Contractor shall indemnify the Government and its officers, agents, and employees against liability, including costs, for infringement of any United States letter patent (except letters patent issued upon an application which is now or may hereafter be kept secret or otherwise withheld from issue by order of the Government) arising out of the performance under this contract, or out of the use of disposal by or for the account of the Government of such supplies or services. The foregoing indemnity shall not apply unless the Contractor shall have been informed as soon as practicable by the Government of the suit or action alleging such infringement, and shall have been given such opportunity as is afforded by applicable laws, rules, or regulations to participate in the defense thereof; and further, such indemnity shall not apply if: (a) the infringement results from compliance with specific written instructions of the Contracting Officer directing a change in the supplies to be delivered or services to be performed, or in the materials or equipment to be used, or directing a manner of performance of the contract not normally used by the Contractor; or (b) the infringement results from the addition to, or change in, the supplies furnished, or services performed, which addition or change was made subsequent to delivery or performance by the Contractor; or (c) the claim infringement is settled without the consent of the Contractor, unless required by final decree of a court of competent jurisdiction.

D.7.

D.8. TERMINATION FOR CONVENIENCE OF THE GOVERNMENT

(a) The performance of work under this contract may be terminated by the Government in accordance with this clause in whole, or from time to time in part, whenever the Contracting Officer shall determine that such termination is in the best interest of the Government. Any such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which performance of work under the contract is terminated, and the date upon which such termination becomes effective.

(b) After receipt of a Notice of Termination, and except as otherwise directed by the Contracting Officer, the Contractor shall:

(1) Stop work under the contract on the date and to the extent specified in the Notice of Termination;

(2) Place no further orders or subcontracts for materials, services, or facilities, except as may be necessary for completion of such portion of the work under the contract as is not terminated;

(3) Terminate all orders and subcontracts to the extent that they relate to the performance of work terminated by the Notice of Termination;

(4) Assign to the Government, in the manner, at the times, and to the extent directed by the Contracting Officer, all of the right, title and interest of the Contractor under the orders and subcontracts so terminated, in which case the Government shall have the right in its discretion, to settle or

pay any or all claims arising out of the termination of such orders and subcontracts;

(5) Settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, with the approval or ratification of the Contracting Officer, to the extent he may require, which approval or ratification shall be final for all the purposes of this clause;

(6) Transfer title to the Government and deliver in the manner, at the time, and to the extent, if any, directed by the Contracting Officer, (i) the fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced as a part of, or acquired in connection with the performance of, the work terminated by the Notice of Termination, and (ii) the completed or partially completed plans, drawings, information and other property which, if the contract had been completed, would have been required to be furnished to the Government;

(7) Use his best efforts to sell, in the manner, at the times, to the extent, and at the price or prices directed or authorized by the Contracting Officer, any property of the types referred to in (6) above: Provided, however, that the Contractor (i) shall not be required to extend credit to any purchaser, and (ii) may acquire any such property under the conditions prescribed by and at a price or prices approved by the Contracting Officer: And provided further, that the proceeds of any such transfer or disposition shall be applied in reduction of any payments to be made by the Government to the Contracting Officer may direct;

(8) Complete performance of such part of the work as shall not have been terminated by the Notice of Termination; and

(9) Take such action as may be necessary, or as the Contracting Officer may direct, for the protection and preservation of the property related to this contract which is in the possession of the Contractor and in which the Government has or may acquire an interest.

At any time after expiration of the plant clearance period, as defined in Subpart 1-8.1 of the Federal Procurement Regulations (41 CFR 1-8.1), as the definition may be amended from time to time, the Contractor may submit to the Contracting Officer a list, certified as to quantity and quality, of any or all items of termination inventory not previously disposed of, exclusive of items the disposition of which has been directed or authorized by the Contracting Officer, and may request the Government to remove such items or enter into a storage agreement covering them. Not later than fifteen (15) days thereafter, the Government will accept title to such items and remove them or enter into a storage agreement covering the same: Provided, that the list submitted shall be subject to verification by the Contracting Officer upon removal of the items or, if the items are stored, within forty-five (45) days from the date of submission of the list, and any necessary adjustment to correct the list as submitted shall be made prior to final settlement.

(c) After receipt of a Notice of Termination, the Contractor shall submit to the Contracting Officer his termination claim, in the form and with certification prescribed by the Contracting Officer. Such claim shall be submitted promptly but in no event later than one year from the effective date of termination, unless one or more extensions in writing are granted by the Contracting Officer upon request of the Contractor made in writing within such one-year period or authorized extension thereof. However, if the Contracting Officer determines that the facts justify such action, he may receive and act upon any such termination claim at any time after such one-year period or any extension thereof. Upon failure of the Contractor to submit his termination claim within the time allowed, the Contracting Officer may, subject to any review required by the contracting agency's procedures in effect as of the date of execution of this contract, determine, on the basis of information available to him, the amount, if any, due to the Contractor by reason of the termination and shall thereupon pay to the Contractor the amount so determined.

(d) Subject to the provisions of paragraph (c), and subject to any review required by the contracting agency's procedures in effect as of the date of execution of this contract, the Contractor and the Contracting Officer may agree upon the whole or any part of the amount or amounts to be paid to the Contractor by reason of the total or partial termination of work pursuant to this clause, which amount or amounts may include a reasonable allowance for profit on work done: Provided, that such agreed amount

or amounts, exclusive of settlement costs, shall not exceed the total contract price as reduced by the amount of payments otherwise made and as further reduced by the contract price of work not terminated. The contract shall be amended accordingly, and the Contractor shall be paid the agreed amount. Nothing in paragraph (e) of this clause, prescribing the amount to be paid to the Contractor in the event of failure of the Contractor and the Contracting Officer to agree upon the whole amount to be paid to the Contractor by reason of the termination of work pursuant to this clause, shall be deemed to limit, restrict, or otherwise determine or affect the amount or amounts which may be agreed upon to be paid to the Contractor pursuant to this paragraph(d).

(e) In the event of the failure of the Contractor and the Contracting Officer to agree as provided in paragraph (d) upon the whole amount to be paid to the Contractor by reason of the termination of work pursuant to this clause, the Contracting Officer shall, subject to any review required by the contracting agency's procedures in effect as of the date of execution of this contract, determine, on the basis of information available to him, the amount, if any, due to the Contractor by reason of the termination and shall pay to the Contractor the amounts determined as follows:

(1) For completed supplies accepted by the Government (or sold or acquired as provided in paragraph (b)(7) above) and not theretofore paid for a sum equivalent to the aggregate price for such supplies computed in accordance with the price or prices specified in the contract, appropriately adjusted for any saving of freight or other charges;

(2) The total of --

(i) The costs incurred in the performance of the work terminated, including initial costs and preparatory expense allocable thereto, but exclusive of any cost attributable to supplies paid or to be paid for under paragraph (e)(1) hereof;

(ii) The cost of settling and payment claims arising out of the termination of work under subcontracts or orders, as provided in paragraph (b)(5) above; which are properly chargeable to the terminated portion of the contract (exclusive of amounts paid or payable on account of supplies or materials delivered or services furnished by subcontractors or vendors prior to the effective date of the Notice of Termination, which amounts shall be included in the costs payable under (i) above); and

(3) The reasonable costs of settlement, including accounting, legal, clerical, and other expenses reasonable necessary for the preparation of settlement claims and supporting data with respect to the terminated portion of the contract and for the termination and settlement of subcontracts thereunder, together with reasonable storage, transportation, and other costs incurred in connection with the protection or disposition of property allocable to this contract.

The total sum to be paid to the Contractor under (1) and (2) of the paragraph (e) shall not exceed the total contract price as reduced by the amount of payments otherwise made and as further reduced by the contract price of work not terminated. Except for normal spoilage, and except to the extent that the Government shall have otherwise expressly assumed the risk of loss, there shall be excluded from the amounts payable to the Contractor as provided in (e) (1) and (2) (i) above, the fair value, as determined by the Contracting Officer, of property which is destroyed, lost, stolen, or damaged so as to become undeliverable to the Government, or to a buyer pursuant to paragraph (b) (7).

(f) Costs claimed, agreed to, or determined pursuant to paragraphs (c), (d), and (e) of this clause shall be in accordance with the applicable contract costs principles and procedures in Part 1-15 of the Federal Procurement Regulations (41 CFR 1-15) in effect on the date of this contract.

(g) The Contractor shall have the right to appeal, under the clause of this contract entitled "Disputes", from any determination made by the Contracting Officer under paragraph (c) or (e) above, except that, if the Contractor has failed to submit his claim within the time provided in paragraph (c) above and has failed to request extension of such time, he shall have no such right of appeal. In any case when the Contracting Officer has made a determination of the amount due under paragraph (c) or (e) above, the Government shall pay to the Contractor the following: (1) if there is no right of appeal hereunder or if no timely appeal has been taken, the amount so determined by the Contracting Officer, or

(2) if an appeal has been taken, the amount finally determined on such appeal.

(h) In arriving at the amount due the Contractor under this clause there shall be deducted (1) all unliquidated advance or other payments on account theretofore made to the Contractor, applicable to the terminated portion of this contract; (2) any claim which the Government may have against the Contractor in connection with this contract; and (3) the agreed price for, or the proceeds of sale of, any materials, supplies, or other things acquired by the Contractor or sold, pursuant to the provisions of this clause, and not otherwise recovered by or credited to the Government.

(i) If the termination hereunder be partial, prior to the settlement of the terminated portion of this contract, the Contractor may file with the Contracting Officer a request in writing for an equitable adjustment of the price or prices specified in the contract relating to the continued portion of the contract (the portion not terminated by the Notice of Termination), and such equitable adjustment as may be agreed upon shall be made in such price or prices.

(j) The Government may from time to time, under such terms and conditions as it may prescribe, make partial payments and payments on account against costs incurred by the Contractor in connection with the terminated portion of this contract whenever in the opinion of the Contracting Officer the aggregate of such payments shall be within the amount to which the Contractor will be entitled hereunder. If the total of such payments is in excess of the amount finally agreed or determined to be due under this clause, such excess shall be payable by the Contractor to the Government upon demand, together with interest computed at the rate of 6 percent per annum for the period from the date such excess payment is received by the Contractor to the date on which such excess is repaid to the Government: Provided, however, that no interest shall be charged with respect to any such excess payment attributable to a reduction in the Contractor's claim by reason of retention or other disposition of termination inventory until ten days after the date of such retention or disposition, or such later date as determined by the Contracting Officer by reason of the circumstances.

(k) Unless otherwise provided for in this contract, or by applicable statute, the Contractor, from the effective date of termination and for a period of three years after final settlement under this contract, shall preserve and made available to the Government at all reasonable times at the office of the Contractor but without direct charge to the Government, all his books, records, documents, and other evidence bearing on the costs and expenses of the Contractor under this contract and relating to the work terminated hereunder, or, to the extent approved by the Contracting Officer, photographs, micro-photographs, or other authentic reproductions thereof.

(l) Where the subject matter of this contract is under a term of lease, the limit of the Government's liability shall be an amount, not to exceed the total amount due and payable under such leasing arrangement, up to the date of such termination.

SECTION E - SPECIAL PROVISIONS

- E.1. ORDER OF PRECEDENCE
- E.2. TERM OF CONTRACT
- E.3. CONTRACT OPTIONS TO EXTEND OR INCREASE QUANTITY
- E.4. WARRANTY EXCLUSION AND LIMITATION OF DAMAGES
- E.5. REPLACEMENT PARTS AVAILABILITY
- E.6. STANDARD OF PERFORMANCE AND ACCEPTANCE OF DATA PROCESSING SYSTEM
- E.7. LIQUIDATED DAMAGES (HARDWARE/SOFTWARE)
- E.8. ADDITIONAL TERMS AND CONDITIONS APPLICABLE TO RENTAL OF ADPE
- E.9. ADDITIONAL TERMS AND CONDITIONS APPLICABLE OF ADPE
- E.10. AVAILABILITY OF EQUIPMENT AND SOFTWARE
- E.11. CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE

SECTION E - SPECIAL PROVISIONS

- E.1. ORDER OF PRECEDENCE

In the event of an inconsistency between provisions of this contract, the inconsistency shall be resolved by giving precedence in the following order:

1. Section F - Mandatory Specifications, including all amendments.
2. Section G - Mandatory Support Requirements, including all amendments.
3. Section H - Desirable Features, including all amendments.
4. Section E - Special Provisions, including all amendments.
5. Section D - Supplemental Provisions.
6. Section C - General Provisions
7. Volume IV - System Description of the Offeror's Proposal including all amendments and related correspondence; which shall be considered incorporated herein by reference.
8. Other Provisions of the Contract, whether incorporated by reference or otherwise.

- E.2. TERM OF CONTRACT

Although the Government contemplates use of the system(s) (Hardware and Software) for the system life of 60 months from date of installation, the term of this contract is from date of award through September 30 of the year in which it is awarded.

- E.3. CONTRACT OPTIONS TO EXTEND OR INCREASE QUANTITY

E.3.1. Option to Extend The Term of The Contract. This contract is renewable, at the prices listed in Section I, at the option of the Government, by the Contracting Officer giving written notice or

renewal to the Contractor by the first day of each fiscal year or within 30 days after funds for that fiscal year become available, whichever date is the later; provided that the Contracting Officer shall have given preliminary notice of the Government's intention to renew at least 30 days before this contract is to expire. Such a preliminary notice shall not be deemed to commit the Government to renewals. If the Government exercises this option for renewal, the contract as renewed shall be deemed to include this option provision. However, the total duration of this contract, including the exercise of any options under this clause, shall not exceed 60 months from the date of the successful acceptance of the initial configuration.

E.3.2. See E.12.

E.3.3. Option for Acquisition of Desirable Features Not Procured at Time of Award of Contract. The Government may exercise the option to acquire the desirable features stated in the contract at unit prices specified therein. The Contracting Officer at any time prior to the expiration dates set forth in Section M of the Contractor's proposal. Delivery of the desirable features added by exercise of the option shall be in accordance with the delivery schedule set forth in Section G.

E.4. WARRANTY EXCLUSION AND LIMITATION OF DAMAGES

Except as expressly set forth in writing in this agreement, or except as provided in the clause entitled, "Commitments, Warranties and Representations" and except for the implied warranty of merchantability, there are no warranties expressed or implied. In no event will the Contractor be liable to the Government for consequential damages as defined in the Uniform Commercial Code, Section 2715 in effect in the District of Columbia as of January 1, 1973, i.e.:

Consequential damages resulting from the seller's breach include:

(a) Any loss resulting from general or particular requirements and needs of which the seller at the time of contracting had reason to know and which could not reasonably be prevented by cover or otherwise; and

(b) Injury to person or property proximately resulting from any breach of warranty.

E.5. REPLACEMENT PARTS AVAILABILITY

The Contractor guarantees that replacement parts for each machine in this contract will be available for the systems (items) life of 60 months. The Contractor shall notify the Government 180 days before the end of the systems (items) life as to the continuing availability of parts subsequent to this period. If parts will not be available from the Contractor, then the Government may require the Contractor to furnish data that is available to assist the Government to obtain such parts from another source.

E.6. STANDARD OF PERFORMANCE AND ACCEPTANCE OF DATA PROCESSING SYSTEM

E.6.1. General. This sub-section establishes a standard of performance which must be met before the system listed in Sections I and J are accepted by the Government. This also includes replacement, substitutions, additions, augmentations, and modifications after a successful performance period.

E.6.2. Performance Period. The performance period shall begin on the installation date and shall end when the system has met the standard of performance for a period of thirty (30) consecutive days by operating in conformance with the Contractor's technical specifications and functional descriptions, or as quoted in the Contractor's proposal, which must satisfy the requirements of Section F at an effectiveness level of more on a total system and individual component basis.

E.6.3. Continuance of Performance Period. In the event the system or component does not meet the standard of performance during the initial 30 consecutive days, the performance period shall continue on a day-by-day basis until the standard of performance is met for a total of 30 consecutive days.

E.6.4. Failure to Meet Standard of Performance. If the system or component fail to meet the standard of performance after 90 calendar days from the installation date or start of performance period, whichever is later, the Government may at its option require the immediate removal of the system or component.

E.6.5. Effectiveness Level Computations. The effectiveness level for a system or component is computed by dividing the operational use time by the operational use time plus system failure downtime.

E.6.6. Changes in Equipment. The effectiveness level for added, field-modified, substituted, or for replacement machines is a percentage figure determined by dividing the operational use time of the machine by the operational use time plus downtime resulting from equipment failure of the machine being tested.

E.6.7. Operational Use Time for System and Component. Operational use time for performance testing of the system is the accumulated time during which the Central Processing Unit is in actual operation, including any intervals of time between the start and stop of the processing of the programs on a total system and individual component basis.

E.6.8. Operational Use Time for Equipment. Operational use time for performance testing for a machine added, field-modified, substituted or for a replacement machine, is defined as the accumulated time during which the machine is in actual use.

E.6.9. System Failure Downtime. System failure downtime is that period of time during which the scheduled productive workload, or simulated workload, being utilized for acceptance testing cannot be continued on the system due to the failure of any component. If simulated workload is being used for acceptance testing, it must be consistent with the data processing requirements set forth elsewhere in this contract.

E.6.10. Rejection of Entire System. During the Performance Period, a total system may be rejected at the option of the Government when rental value of the components not meeting the standard of acceptance exceeds 10% of the total rental dollars that would have been paid the vendor had such system passed the acceptance test.

E.6.11. Start of Downtime. Downtime for each incident shall start from the time the Government contacts the Contractor's designated representative at the prearranged contact point until the system(s) or machine(s) is returned to the Government in proper operating condition, exclusive of actual travel time required by the Contractor's maintenance personnel but not in excess of one hour on each day such services were requested; provided that, at the request of the Contractor, the Government shall make available not only the failed equipment, but also those machines which must be utilized by the Contractor in accomplishing such repairs. The Contractor shall provide an answering service or other continuous telephone coverage to permit the Government to make such contact.

E.6.12. Equipment Use During System Downtime. During a period of system failure downtime, the Government may use operable equipment when such action does not interfere with maintenance of the inoperable equipment. The entire system will be considered down during such periods of use. Whenever the operable equipment is not released to the Contractor upon request, then all such usage period shall be considered system operational use time in computing the effectiveness level.

E.6.13. Machine Failure Downtime. Machine failure downtime for a machine added, field-modified, substituted, or for a replacement machine after the system has completed a successful performance period is that period of time when such machine is inoperable due to its failure.

E.6.14. Minimum of Use Time. During the performance period for a system/machine a minimum of 100 hours of operational use time with scheduled productive or simulated work will be required as a basis for computation of the effectiveness level. However, in computing the effectiveness level, the actual number of operational use hours shall be used when in excess of the minimum of 100 hours. Machines added, field-modified, and substitute machines are subject to the 100-hour minimum.

use time requirement. However, the Government shall accept such machine(s) without the addition of simulated work solely to achieve the minimum of 100 hours use time, provided the average effectiveness for the 30-day acceptance period is equal to or better than the level specified in E.6.2.

E.6.15. Date of Acceptance. System shall not be accepted and no changes shall be paid until the standard of performance is met. The date of acceptance shall be the first day of the successful performance period.

E.6.16. Daily Records. The Government shall maintain appropriate daily records to satisfy the requirements in E.6. and shall notify the Contractor in writing of the date of the first day of the successful performance period.

E.6.17. Measurement of Operational Use Time. Operational use time and downtime shall be measured in hours and whole minutes.

E.6.18. Delay of Start of Performance Period. Should it be necessary, the Government may delay the start of the performance period, but such delay shall not exceed 30 consecutive days; therefore, the performance period must start not later than the 31st day after the installation date. Should the Government delay the start of the performance period, rental charges shall accrue for that period of time between the installation date and the start of the performance period and shall be paid only upon completion of the successful performance period.

E.7. LIQUIDATED DAMAGES (HARDWARE/SOFTWARE)

E.7.1. Equipment (Hardware) and Software. For nondelivery of equipment or software, the Contractor shall pay to the Government, as fixed and agreed liquidated damages for each calendar day's delay beginning with the Installation Date(s) specified in Section G, but not for more than 180 days as follows:

E.7.1.1. Total System. If the Contractor does not install all the equipment and deliver the operating software, in accordance with his functional specifications, identified in Section L, Tables I-1 and I-3, including the special features and accessories included on the same order with the equipment and software, and as a result, the total system is not ready for use on the Installation Date, the liquidated damages shall be 3.33% of the Total Monthly Charge or .06% of the purchase price per day until the said system is installed for the ordered equipment and software, depending upon whether ordered for a rental or purchase.

E.7.1.2. Machines. When an installation date is specified on an order for machines to be added subsequent to the initial system installation date, and the contractor fails to install, ready for use, any such machine (including special features, any required operating software, and accessories) on or before the required installation date, liquidated damages shall be assessed on a daily basis until installed. Such liquidated damages shall be computed on the basis of each calendar day of delay at a rate of 3.33% of the monthly charge for each machine(s) that cannot be used as a direct result of the delay or .06% of the purchase price of the machine, depending upon whether the machine is ordered for rental or purchase. Liquidated damages shall cease upon the day the machine is installed and is determined ready for use.

E.7.1.3. Partial Installation. If some, but not all of the equipment and software on order is installed/delivered, ready for use, by the Installation Date, and the Government uses any such installed equipment and/or delivered software, liquidated damages shall not accrue against these items for any calendar day on which they are used. In this event, for each day's delay, the Contractor shall pay, depending upon whether ordered for rental or purchase, 3.33% of the Total Monthly Charge or .06% of the purchase price, for each item of equipment and software not installed/delivered, as well as for each installed/delivered item which as a result is not used by the Government.

E.7.2. Equipment (Hardware)

E.7.2.1. Substitute Equipment. If the Contractor installs suitable substitute equipment, acceptable to the Government, on or before the Installation Date, no liquidated damages shall apply to

ordered equipment for which substitute equipment was accepted.

E.7.2.2. Replacement Equipment. If the Contractor fails to install all the equipment identified in Section I, including the special features and accessories included on the same order with the equipment, then the Government may obtain replacement equipment. In this event, the Contractor shall be liable for liquidated damages from the Installation Date specified in Section G., until replacement equipment is installed, ready for use, or for 180 days from the Installation Date, whichever occurs first.

E.7.3. Software

E.7.3.1. Failure to Deliver Software. In addition to the provisions of paragraphs E.7.3.2 through E.7.3.5, the Government specifically reserves the right, at its option, to terminate this contract and require the immediate removal of the equipment, at any time up to the date the Contractor delivers said software to the Government, if the Contractor fails to deliver, within 30 days, the required software by the date(s) specified in the contract.

E.7.3.2. Operating Software. If the Contractor fails to deliver, on or before the specified delivery date, all of the ordered operating software, as set forth in Section I, Table I-3, or if the delivered operating software fails to conform to the functional descriptions set forth in section Q, then, the provisions of E.7.1. shall apply with respect to liquidated damages.

E.7.3.3. Other Software. If the Contractor fails to demonstrate and provide written certification that the ordered software, as specified in Section I, Table I-3, with the exception of any software identified as Operating Software, has been furnished on or before the delivery date indicated in this contract and in accordance with the functional description provided by the Contractor in Section Q, then liquidated damages in the amount of 3.33% of the monthly license fee for each calendar day for each such item shall be assessed. However, such liquidated damages shall not be assessed for more than 180 days.

E.7.3.4. Replacement Software. In the event that the Government terminates the right of the Contractor to install the equipment in accordance with paragraph E.7.2.2., the Contractor shall be liable for liquidated damages for the period of time between the specified delivery date and the date the software for the replacement equipment is delivered, ready for use, or for 180 days from the delivery date, whichever occurs first.

E.7.3.5. Substitute. If the Contractor installs suitable substitute software, acceptable to the Government on or before the specified delivery date, no liquidated damages shall apply to ordered software for which substitute software was accepted.

E.7.4. Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but are not restricted to, Acts of God or of the public enemy, acts of the Government in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather; but in every case the delay must be beyond the control and without the fault of negligence of the Contractor. If the delays are caused by the default of a subcontractor, and such default arises out of causes beyond the control of both the Contractor and the subcontractor, and without the fault of negligence on either of them, the Contractor shall not be liable for liquidated damages for delays, unless the supplies or services to be furnished by the subcontractor were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

E.8. ADDITIONAL TERMS AND CONDITIONS APPLICABLE TO RENTAL OF ADPE

E.8.1. Period of Rental. The Contractor shall honor orders for periods of one year or less. Upon receipt by the Contractor of written notice from the Government, the Government may discontinue rental and use of:

E.8.1.1. A system - thirty (30) days thereafter.

E.8.1.2. A machine or feature - thirty (30) days thereafter.

E.8.1.3. Either E.8.1.1. or E.8.1.2. above on shorter notice than specified when agreed to by the Contractor. However, the Government may extend the original discontinuance date upon written notice to the Contractor, provided such notice is furnished at least ten (10) days prior to the original discontinuance date.

E.8.2. Terms of Use. The Government requires unlimited use of operation as follows: 24 hours a day, Sunday through Saturday, except an agreed upon period of Preventive Maintenance outside the Principle Period of Maintenance.

E.8.3. Standard of Performance and Acceptance of Equipment. Rental and maintenance charges shall apply beginning on the first day of the successful performance period.

E.8.4. Equipment Replacement

E.8.4.1. Mechanical Replacement. When mechanical replacement is required under the provisions of G.4.8. of this contract, a replacement period of up to thirty (30) days shall be established, at the option of the Government.

E.8.4.2. Performance Acceptance Period. this period shall commence on the installation Date of the replacement machine.

E.8.4.3. Charges. No rental or maintenance charges will be paid during the replacement period for the equipment being replaced.

E.8.5. Major Field Modifications

E.8.5.1. Modifications. The contractor shall provide for on-site field modification of equipment on the same basis as furnished to other customers for the same type of equipment as supplied under the contract if requested by the Government. Engineering changes may also be sponsored by the Contractor upon notification to the Government and installed at a mutually agreed time.

E.8.5.2. Charges. Rental and maintenance charges will be discontinued on the equipment being modified and for any equipment supplied under this contract which is not usable during the modification period on the day the equipment is turned over to the Contractor for modification. When the modification is requested by the Government, rental and maintenance shall not be discontinued when such modification results in the equipment remaining inoperative for a period of twenty-four (24) consecutive hours or less. Rental and maintenance charges will be reinstated upon certification in writing by the Contractor that the equipment is ready for use. The modified equipment and associated operating software are subject to the provisions of paragraph E.6., provided the modification results in a model change.

E.8.6. Alterations and Attachments

E.8.6.1. Government Alterations. Upon 30 days written notice, the Government may make alterations or install attachments to the Contractor's equipment, provided that such action will not create a safety hazard. The Government shall assume full liability for any damages and/or degradation in equipment performance attributable directly to such alteration or attachment. In addition, the maintenance credit provisions set forth elsewhere in this contract shall not apply when equipment failure is caused by an alteration or attachment not supplied by the Contractor.

E.8.6.2. Maintenance Charges. In the event that alterations made by the Government increase the cost of maintenance, mutually agreeable arrangements for additional maintenance under this contract, as applicable, shall be made on an individual installation basis.

E.8.6.3. Removal of Alterations or Attachments. Such alterations or attachments which are not

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The property of the Contractor shall be removed by the Government before discontinued of rental and the equipment shall be restored to the prior configuration at Government expense.

E.8.6.4. Reprogramming. Any reprogramming agreed to by the contractor which is required to accommodate such alterations and/or attachments will be accomplished at the Government's expense.

E.8.7. Relocation of Equipment

E.8.7.1. Emergency Movement. Except in an emergency, equipment shall not be moved from the general location in which installed unless the Contractor has been notified that a move is to be made.

E.8.7.2. Authorized Movement. Upon written notification to the Contractor, equipment may be transferred from one Government location to another under this contract. Rental and maintenance charges shall be suspended during the period of transfer not to exceed 30 calendar days; provided the transfer time exceeds one (1) calendar day. There will be no cessation of rental and maintenance charges however, if equipment to be transferred has been installed at the site for less than three (3) months or will be installed at the new location for less than three (3) months.

E.8.7.3. Supervision. The Government shall furnish such labor as shall be necessary for packing and unpacking of the equipment. The Contractor shall supervise packing, unpacking and relocation of the equipment at the Contractor's then current standard rates, provided that the Contractor charges his commercial customers for similar services associated with relocation. All other costs associated with the relocation shall be the responsibility of the Government.

E.8.7.4. Notice. The Government shall give at least thirty (30) days written notice of movement of equipment unless such movement is required because of an emergency. Such relocation shall be by padded van or air freight at the Government's expense.

E.8.7.5. Geographic Area. If the equipment is relocated in a geographic area where the Contractor does not have the necessary and required facilities or the Contractor will incur additional support costs at the new location, then continued applicability of this contract shall be subject to mutual agreement.

E.8.8. Supplies. Rental and maintenance charges do not include consummable supplies, e.g., paper, tape, carbon, etc. The Contractor's technical specifications for supplies must not be of a special nature different than that usually found in the marketplace.

E.8.9. Title. Title to equipment, accessories, and devices rented under this contract shall remain with the Contractor. All devices and accessories furnished by the Contractor, except those purchased by the Government, shall accompany the equipment when returned to the Contractor.

E.8.10. Purchase Option. The Government may at any time following acceptance of the equipment, purchase any or all ADP equipment rented in accordance with the following terms: Equipment rented under this contract may be purchased at the purchase price for new equipment at the time such equipment was initially ordered for rental or at the time of purchase, whichever is lesser. The Government will be allowed cumulative purchase option credits, as indicated by the Contractor in Section K of this contract, beginning with the first day of the successful performance period. The equipment to be purchased must have been on continuous rental, but suspension of rental during the movement of equipment from one site to another shall be interpreted as "continuous rental." The equipment converted to purchase shall be discontinued from rental on the day immediately preceding the effective date of purchase. If the purchase option is exercised during the first 90 days beginning with the first day of the successful performance period, the warranty specified in E.9.1.1. shall apply for the remaining days covered by the 90-day warranty.

E.8.11. Rental Invoice and Payment Provisions

E.8.11.1. Invoices for Full Month. The Contractor shall render invoices (3 copies) for basic monthly charges at the end of the month for which the charges accrue. Invoices are payable when billed.

Invoices shall provide as a minimum:

(a) Type and description of equipment; (b) Serial number; (c) Basic monthly charge for each machine; (d) Total charges and Prompt Payment Discount, if applicable.

E.8.11.2. Invoices for Partial Month. Payment for rental and maintenance services of less than one month's duration shall be prorated at 3.33% of the basic monthly charges for each calendar day.

E.8.11.3. Credits. Any credits due the Government may be applied against Contractor's invoices with appropriate information attached.

E.9. ADDITIONAL TERMS AND CONDITIONS APPLICABLE TO PURCHASE OF ADPE

E.9.1. Warranty. The following warranty is in addition to and shall not limit the rights of the Government under paragraph C.5.

E.9.1.1. Warranty Period. The Contractor will furnish at no cost to the Government, maintenance (labor and parts), as specified in this contract, for a period of ninety (90) days beginning on the first day of the successful performance period.

E.9.1.2. Replaced Parts. All replaced parts during the warranty period shall become the property of the Contractor.

E.9.1.3. Cost of Movement. Prior to the expiration of the warranty period, whenever equipment is shipped for mechanical replacement purposes the Contractor shall bear all costs, including but not limited to, costs of packing, transportation, rigging, drayage, and insurance.

E.9.1.4. Fault of Government. The warranty shall not apply to maintenance required due to the fault or negligence of the Government.

E.9.2. Title. Title to each machine, including special features installed thereon, will pass to the Government when the purchase price is paid.

E.9.3. Used Equipment. Used equipment must be identified and must be warranted the same as new equipment.

E.9.4. Purchase Invoice and Payment Provision. The Contractor shall be paid upon submission on invoices (3 copies), after completion of a successful performance period. In the case of purchase of installed rental equipment the effective date of purchase is set forth in paragraph E.9.5.

E.9.5. Purchase of Installed Rental Equipment. Installed rental equipment acquired under the provisions of paragraph E.8. may be purchased at any time. The purchase allowance shall be in accordance with paragraph E.8.10. All applicable provisions of paragraph E.8. and E.9. shall apply. Provided that the Contractor clearly demonstrates that the equipment is in good operating condition, the effective date of purchase shall be either:

E.9.5.1. The day following receipt by Contractor of a funded contract amendment or funded purchase order.

E.9.5.2. A later date if so specified on the order.

E.9.5.3. An earlier date when mutually agreed to, and a confirming order is received within thirty (30) days after the effective date of purchase.

E.10. AVAILABILITY OF SYSTEM

The system proposed in response to this Solicitation Document must have been formally announced and

be an operating production model on or before the closing date of this solicitation.

E.11. CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE

The Contractor Officer's Technical Representative (COTR) is responsible for the technical aspects of the project and technical liaison with the Contractor. The COTR is also responsible for the final inspection and acceptance of all the goods and/or services under the contract, including the review of any and all reports, and such other responsibilities as may be specified in the contract.

The COTR is not authorized to make any commitments or otherwise obligate the Government or authorized any changes which affect the contract price, terms, and conditions. Any Contractor requests for changes shall be referred to the Contracting Officer directly or through the COTR. No such changes shall be made without the expressed prior authorization of the Contracting Officer. The COTR may designate assistant COTR(s) to act for him by naming such assistants in writing and transmitting a copy of such designation through the Contracting Officer to the Contractor.

The COTR shall be designated at time of award of contract. The COTR may be changed by the Government at any time, but notification of the change will be promptly provided to the Contractor by the Contracting Officer in writing.

E.12. OPTION FOR INCREASED QUANTITY

The Government may increase the quantity of items call for herein by the amount stated below and at the prices offered for said increases. The Contracting Officer may exercise this option at any time within the term of this contract as extended, by giving written notice to the contractor. Delivery of these items will be as specified elsewhere herein. The following options shall be offered and evaluated.

1. 100% increase over the year 3 requirement. This will be evaluated as if installed the first day of year 4. The government reserves the right to require delivery of any portion of the optional system up to a 100% increase of the total configuration required for delivery in year 3.

SECTION G - MANDATORY SUPPORT REQUIREMENTS

- G.1. EXISTING FACILITIES
 - G.1.1. GENERAL
 - G.1.2. FLOOR AREA
 - G.1.3. ACCESS DOORS
- G.2. TRANSPORTATION AND INSTALLATION OF EQUIPMENT
 - G.2.1. TRANSPORTATION
 - G.2.2. PACKING, UNPACKING AND MOVEMENT
 - G.2.3. INSTALLATION
- G.3. STANDARD OF PERFORMANCE
 - G.3.1. GENERAL
 - G.3.2. PERFORMANCE PERIOD
 - G.3.3. FAILURE TO MEET STANDARD OF PERFORMANCE
 - G.3.4. EFFECTIVENESS LEVEL COMPUTATIONS
 - G.3.5. CHANGES IN EQUIPMENT
 - G.3.6. OPERATIONAL USE TIME FOR SYSTEM AND COMPONENT
 - G.3.7. OPERATIONAL USE TIME FOR EQUIPMENT
 - G.3.8. SYSTEM FAILURE DOWNTIME
 - G.3.9. START DOWNTIME
 - G.3.10. EQUIPMENT USE DURING SYSTEM DOWNTIME
 - G.3.11. COMPONENT FAILURE DOWNTIME
 - G.3.12. DAILY RECORDS
 - G.3.13. MEASURE OF OPERATIONAL USE TIME
 - G.3.14. SYSTEM PERFORMANCE GUARANTEES
- G.4. MAINTENANCE
 - G.4.1. RESPONSIBILITIES OF THE CONTRACTOR
 - G.4.2. RESPONSIBILITIES OF THE GOVERNMENT
 - G.4.3. PRINCIPAL PERIOD OF MAINTENANCE
 - G.4.4. ON-CALL REMEDIAL MAINTENANCE
 - G.4.5. MAINTENANCE OPTIONS REQUIRES
 - G.4.6. RESPONSE TIME
 - G.4.7. DOWNTIME CREDITS
 - G.4.8. MACHINE REPLACEMENT
 - G.4.9. NON-CHARGEABLE MAINTENANCE ITEMS
 - G.4.10. SYSTEM PREVENTIVE MAINTENANCE
 - G.4.11. REMEDIAL MAINTENANCE
 - G.4.12. MALFUNCTION REPORTS
 - G.4.13. SPECIAL PROVISIONS FOR MAINTENANCE OF GOVERNMENT-OWNED ADPE
- G.5. SOFTWARE SUPPORT
 - G.5.1. SOFTWARE FURNISHED
 - G.5.2. MODIFICATIONS AND REVISIONS
 - G.5.3. OPERATING SOFTWARE
 - G.5.4. AVAILABILITY OF ADDITIONAL SOFTWARE
 - G.5.6. GOVERNMENT RIGHTS IN COMPUTER SOFTWARE

FIGURE 1 DIAGRAM OF EQUIPMENT SPACE

- G.1. EXISTING FACILITIES
 - G.1.1. General. The proposed equipment will be placed in the New Executive Office Building. Specific floor plans are not available at present.
- G.2. TRANSPORTATION AND INSTALLATION OF EQUIPMENT
 - G.2.1. Transportation.

ATTACHMENT I - GLOSSARY.

The definitions and explanations set forth in FIPS PUB 11 unless modified by this glossary and this glossary are an integral part of the terms and conditions of this contract.

1. Acceptable. The condition applicable to a proposed item which has been evaluated by the Government and determined to have satisfactorily met the requirements of the Solicitation.
2. Acceptance. The formal acknowledgement by the Government that Contractor-supplied equipment has been installed and has satisfactorily met the required Standard of Performance for the specified Performance Period.
3. Alteration. Any change to a machine which deviates from the physical, mechanical or electrical machine design (including microcode), whether or not additional devices or parts are required.
4. Alternate Proposal. A proposal(s) submitted by a single offeror in addition to other proposal(s) to satisfy the requirements of a Solicitation where one proposal is designated the primary proposal and others as alternate proposal #1, alternate proposal #2, and so forth.
5. ANSI. American National Standards Institute.

6. Attachment. The mechanical, electrical or electronic interconnection of equipment manufactured by other than the OEM of the machine or system.
7. Back-Up Machine. A machine added to an equipment configuration for the purpose that inoperative hours of a like machine in the configuration do not exceed a required level.
8. CCVS. COBOL Compiler Validation System.
9. COBOL Compiler Validation System. The official Government testing procedure to validate COBOL compilers' adherence to the designated level of FIPS PUB 21-1, Federal Standard COBOL.
10. Compatible. Pertaining to the ability to perform the data processing requirements in a new environment without having to modify application software and without affecting the results of data processing.
11. Cursor. A visual marker, usually an underscore, displayed on the screen of a video display device to indicate the position that a character inputted to the device will occupy in relation to the complete screen image.
12. Data Processing System and/or Subsystem. The total complement of individual machines and operating software furnished by the Contractor and acquired to operate as an integrated group.

13. Desirable Feature. A technical requirement of a solicitation which need not be provided in order for a proposal to be acceptable and for which the evaluation of proposals includes consideration of that technical requirement's assigned dollar value.

14. Effectiveness Level. Systems availability expressed as the quotient of operational use time divided by operational use time plus system failure downtime.

15. Equipment. An all-inclusive term which refers either to individual machines or the total complement of machines required to operate as an integrated group.

16. Equipment and/or Operating System Failure.

A malfunction in the Contractor-supplied equipment and/or operating system, excluding all external factors, which prevents the accomplishment of a job.

17. Equipment Downtime. That period of time a machine(s) is unusable due to an equipment and/or operating system failure. The period of time is measured from the time the Contractor's maintenance representative is contacted by the Government to the time the machine(s) is returned to the Government in operable condition.

18. Equipment Environmental Specifications. An equipment configuration diagram and/or layout depicting the environmental requirements of the system, e.g., power requirements, air conditioning requirements, power outlet locations, etc.

19. Evaluated Cost. The system life costs after prompt payment discount, cash flow discount, and residual value considerations have been applied.

20. Extended Maintenance Period Option. Option to require maintenance service, during any extension of the PPM at a fixed price for such period, regardless of the number of calls requested during such period.

21. Installation Date. The date by which the contract requires the Contractor to have ordered equipment ready for use by the Government at the specified location.

22. Lease. A method of acquisition in which the Contractor retains title to the supplied equipment through the systems life.

23. Lease to Ownership. A method of acquisition in which title passes to the Government after n months of rental/lease payments.

24. Lease with Option to Purchase. A method of acquisition in which the Government leases the equipment and the contract contains an option for purchase at predetermined intervals of time. The

purchase price is usually reduced by subtracting POC as set forth in the contract.

25. Lowest Overall Cost. The least expenditure of funds over the system life, price and other factors considered.

26. LTOP. Lease to Ownership Plan.

27. LWOP. Lease with Option to Purchase.

28. Machine. An individual unit, including features installed thereon, of a data processing system or subsystem, identified by a type and/or model number such as a central processing unit, an additional memory module, a tape unit, a card reader, etc.

29. Machine Failure Downtime. Same as equipment downtime.

30. Maintenance. Any activity intended to eliminate faults and to keep hardware or programs in satisfactory working condition, including tests, measurements, replacements, adjustments and repairs.

31. Mandatory Requirement. A requirement which must be satisfied in order for an offer to be acceptable.

32. Mechanical Replacement. The replacement of one machine for another occasioned by the mechanical condition of the equipment being replaced.

33. Method of Acquisition. The procedure for financing a procurement, e.g., purchase, lease, LTOP, LWOP, etc.

34. Modification.

(1) Pertaining to a data processing system, any change to the system as installed by the Contractor and accepted by the Government.

(2) Pertaining to an RFP/contract, any change to an RFP/contract as evidenced by a formal written amendment to same.

35. Monitor. Software or hardware that observes or verifies the operations of a system.

36. On-Call Maintenance. That maintenance provided by the Contractor's service personnel dispatched from a supplier-designated central site upon receipt of notification that remedial maintenance is required.

37. On-Site Maintenance. That maintenance provided by the Contractor's service personnel stationed full-time at the user's installation and exclusively available to the user for preventative and/or remedial maintenance of the data processing system covered by the maintenance contract.

38. Operating Software. Those routines that interface directly with hardware peripheral devices, the computer operations, applications and utility programs.

39. Operational Use Time. That time during which equipment is in actual operation, exclusive of idle time, standby time or maintenance time due to

Contractor caused machine failure; not synonymous with "power-on" time.

40. Per-Call Maintenance. On-call maintenance requested outside the PPM.

41. Performance Period. The specified period of time that the Contractor-supplied equipment and software must perform at a specified effectiveness level before acceptance.

42. Period of Downtime. That period of time from the instant the Contractor's maintenance representative is contacted as to the need for remedial maintenance to the instant the equipment is returned to the Government in operable condition.

43. POC. Purchase Option Credits.

44. PPM. Principal Period of Maintenance.

45. Present Value. Pertaining to the time value of money. The time value of money is determined by converting cash flow occurring over the life of a project (system life) to an equivalent amount at a common point in time. For purposes of the evaluation of ADPE under this Solicitation, cash flow occurring over the system life will be determined by applying a discount rate with an annual effective rate of 10% to derive the equivalent dollars (Present Value) as of the the beginning of the system life.

46. Preventative Maintenance. That maintenance performed by the Contractor which is designed to prevent faults from occurring during subsequent operations and to keep equipment in proper operating condition. It is performed on a scheduled basis.

47. Principal Period of Maintenance. Any nine consecutive hours per day, including an official meal period not to exceed one hour per day, between the hours of 7:00 a.m. and 6:00 p.m., Monday through Friday, excluding holidays observed at the installation.

48. Purchase. A method of acquisition in which full payment and title transfer occurs after delivery and acceptance of equipment.

49. Purchase Option Credits. Credits which accrue to the Government as a result of leasing equipment. The credits may be nonsuperseding or superseding.

(1) Nonsuperseding. Purchase option credits which apply only to the period specified and do not supersede previous option credits. For example, assuming an annual lease rate of \$120,000, the following table describes nonsuperseding purchase option credits:

<u>Months</u>	<u>POC</u>	<u>Dollar Amount</u>
1-12	90%	\$108,000
13-24	80%	96,000

25-36

70%

84,000

Therefore, total credits for months 1-36
are \$208,000.

(2) Superseding. Purchase option credits which apply to previous periods. For example, assuming the annual lease rate of \$120,000, the following table describes superseding purchase option credits:

<u>Months</u>	<u>POC</u>	<u>Dollar Amount</u>
1-12	90%	\$108,000
13-24	80%	192,000
25-36	70%	252,000

Therefore, total credits for months 1-36
are \$252,000.

50. Ready for Use. The condition of Contractor-supplied equipment and software which has been installed, tested, and determined by the Contractor to be operational.

51. Remedial Maintenance. That maintenance performed by the Contractor which results from Contractor-supplied equipment or operating software failure. It is performed as required and therefore on an unscheduled basis.

52. Residual Value. An estimate of the worth of equipment at the end of the system life.

53. Response Time. That period of time from the instant the Contractor is notified that remedial maintenance is requested to the instant Contractor maintenance personnel arrive at the Government facility.

54. System Downtime. That period of time the system is unable to perform scheduled workload due to an equipment and/or operating system failure. See equipment downtime for the measurement of the period of system downtime.

55. System Failure Downtime. Same as System Downtime.

56. System Life. A forecast or projection of the period of time which begins with the installation of the system or items and ends when the need for such systems or items has terminated.

57. Total Monthly Charges.

(1) Rental. All monthly charges for the use (rental) of equipment and software and for maintenance thereof.

(2) Maintenance of Government-owned. All monthly charges for the maintenance of equipment and software supplied under this contract.

58. VSR. Validation Summary Report.

59. Validation Summary Report. The result in summary format of the COBOL Compiler Validation System.

ATTACHMENT 3 PROPOSAL INSTRUCTIONS

I. PURPOSE OF INSTRUCTIONS

The purpose of these instructions is to provide a uniform format for proposals. These instructions are designed to ensure the submission of information essential to the understanding and evaluation of the proposals. There is no intent to limit the content or information a vendor deems necessary.

II. PROPOSAL FORMAT

Proposals shall contain the following elements:

- Technical Proposal
- Price Proposal
- Contract Proposal

A. Technical Proposal (4 copies)

Technical Proposals shall consist of the following parts:

Part I--SYSTEM REQUIREMENTS

This part shall consist of the following three sections which are to be limited to directly responding to the information sought in Sections F through H of the solicitation:

Section F - compliance to Mandatory Specifications

In order to have an acceptable proposal the offeror must meet all of the mandatory specification requirements set forth in Section F of the Solicitation Document, including any amendments thereto, and a paragraph acknowledging his ability to meet each of those requirements. A detailed statement of the offeror's ability to meet each of the mandatory requirements and reference(s) which substantiate the claim must be provided in Section M of the proposal. The costs associated with meeting these requirements are to be reflected in Sections I and J of the Proposal.

Section G - Compliance to Mandatory Support Requirements

In order to have an acceptable proposal the offeror must also meet all of the support requirements set forth in Section G of the Solicitation Document, including any amendments thereto, and a paragraph acknowledging his ability to meet each of those requirements. A detailed statement of the offeror's ability to meet each of the mandatory requirements and reference(s) which substantiate the claim must be provided in Section M of the proposal. The costs associated with meeting these requirements are to be reflected in Sections I and J of the Proposal.

Section H - Desirable Features Offered

The offeror is not required to furnish the desirable features set forth in Section H of the Solicitation Document. However, if the offeror can provide the feature and wishes credit for so doing he should, since that value will inance his proposal.

Offerors may be required to perform a live demonstration of the systems capabilities specified in Sections F and G. If demonstrations are required, they will be performed at benchmark time.

Part II--SYSTEM DESCRIPTION

This part shall consist of the following six sections:

Section L - General Description

In this section the offeror is to provide a general overview of his system. As a minimum this general description must include a configuration schematic diagram. The schematic diagram will be prepared in a functional form showing each device and the interconnections between these devices. These diagrams will:

Include each separate chargeable device, give name and model for each device or software package.

Indicate clearly all channels and the allocation of these channels.

Indicate all dedicated portions of the CPU concerned with operating remote or peripheral devices.

Indicate characteristics of the interconnecting media, e.g., simplex, half duplex, or full duplex.

Indicate if voice connections are required to initiate interrupt or for operation of remotes or other peripherals.

Depict each configuration if multiple configurations are proposed.

Depict configuration required to meet the expansion criteria if necessary.

Section M - Description of Compliance

In this section of the Proposal the offeror is to provide the detailed description of how he will comply with each of the mandatory requirements and how he will meet those desirable features he offers.

Section N - Environmental Specifications

In this section the offeror shall fully describe the space and environmental conditions required for housing the proposed configuration(s).

Section O - Technical Information

In this section of the Proposal the offeror will submit his technical publications regarding both hardware and software characteristics of the proposed configuration(s). In addition, the offeror will submit a list of the publications to be supplied.

B Price Proposal (4 copies)

The price proposal shall consist of the following sections:

Section I - Unit Price Tables

In this section of the Proposal the offeror is required to submit his response to the Unit Price Tables contained in Section I of the Solicitation Document. These Unit Price Tables must contain all the costs pertinent to hardware, software, and services. The model numbers and quantities shown in the price tables must be identical to the model numbers and quantities shown in the configuration offered. All mandatory items offered must be listed in these Unit Price Tables, if there is no price associated with the item, N/C (No Charge) shall be inserted in the unit price columns.

Section J - Installation Summary Price Tables

In this section of the Proposal the offeror is required to show the summation of his unit prices

into system prices by month over the stated life of the system described in the Solicitation Document. A separate Table J should be submitted for each procurement plan offered and titled: Table J - Lease, Table J - Purchase, etc., as appropriate.

Section K - Costing Information Questionnaire

In this section of the Proposal the offeror shall submit his response to the Costing Information Questionnaire contained in Section K of the Solicitation Document. Any cost associated with modifying existing facilities, operating the system, etc. will be assessed to the offeror's proposal.

C. Contract Proposal (1 copy)

The contract proposal shall include the following:

1. Standard Form 33 (fully executed) including Representations, Certifications and Acknowledgements.
2. Standard Form 33A, Solicitation Instructions and Conditions.
3. General Provisions
4. Supplemental Provisions
5. Special Provisions

TECHNICAL SPECIFICATIONS

FOR THE

E O P

INFORMATION PROCESSING SYSTEM

OCTOBER 1978

1.0 INTRODUCTION

1.1 General Requirements

The technical description/specifications for the Executive Office of the President Information Processing System (IPS) have been divided into two major sections; the first (section 2.0) addresses the *data processing* requirements and the second (section 3.0) addresses the *office automation* requirements. The requirements for each of these two facilities are outlined below:

Data Processing Requirements

- o A communications capability which will support Government-furnished teletype compatible terminals.
- o A sophisticated computational and storage capability which includes:
 - programming languages (PL/I, COBOL, FORTRAN)
 - a DBMS capable of handling large (i.e. 100k records) data bases
 - a forms processing capability to facilitate on-line data entry/update functions
- o A nominal text processing capability to facilitate entry, edit, storage, retrieval, and phototypesetting of textual information.

Office Automation Requirements

- o A communications capability which will support Government-furnished teletype compatible terminals.
- o An integrated collection of sophisticated office automation utilities including:
 - electronic mail
 - document production
 - a DBMS designed to facilitate end-user access to and maintenance of relatively small data bases
- o A nominal data processing capability to facilitate development and maintenance of additional office automation and related applications.

Both facilities must provide a command language, file system, peripherals, and other computer-based hardware/software designed to support a large community of non-programming users in a terminal-oriented, interactive environment.

The data processing facility and the office automation facility will be integrated via a cable-based local area communications network. The EOP is currently investigating several alternative cable-based network technologies. The network technology developed by the Institute for Computer Sciences and Technology of the National Bureau of Standards is one alternative under consideration. This technology enables a broad range of devices (e.g., large mainframe computers, minicomputers, intelligent terminals, TTY compatible terminals) to be connected as an integrated system.

The integration of the data processing and office automation facilities will occur subsequent to installation and acceptance of the two facilities and is not to be considered part of this solicitation. Therefore, while vendors may propose any configuration, packaging, or architecture which meets the requirements of either (or both) of the two facilities, each proposed facility must be functionally and physically autonomous.

In order for a vendor's proposal to be considered technically responsive, the proposed system must meet the following general requirements in addition to the more detailed requirements set forth in section 2.0 and/or section 3.0.

1.1.1 Transparency of Internals

The system being proposed must be a facility in which the components, configuration and architecture are transparent to the users. This means, for example, terminal users should not know (or care) if the system being proposed was configured as a large centrally located mainframe or a collection of mini-computers connected together via distributed processing technology.

1.1.2 Integrated Functions

The capabilities provided by the system being proposed must be integrated into a total system. File formats, file storage, language translators, subsystems, utilities, and other system facilities must be compatible and able to operate as an integrated whole.

1.1.3 User-Oriented Interface

The system being proposed must be a viable tool for the non-programming user. It must provide a comprehensive repertoire of utilities which minimize the need for and complexity of user-developed application programs. Equally important, the system being proposed must provide a user interface to these utilities which is consistent, flexible, easy-to-learn, and easy-to-use.

1.1.4 Dependability

The users must be able to depend on the availability of system services. The system being proposed must be designed and configured so that component failure, error diagnosis, routine maintenance, operational procedures, etc., do not disrupt the continuity of services.

1.2 Single-Source Approach

The IPS is the embodiment of a single-source approach to meeting the information processing requirements of the EOP. The basic analysis and justification for this approach were presented as part of the President's Reorganization Plan #1 (reorganization of the EOP). This approach was also the subject of a follow-on study by the Advisory Group on White House Information Systems.

This single source approach to EOP information processing is a major departure from the multi-source approach utilized previously. Under the multi-source approach, each EOP activity was responsible for serving its own information processing needs. In some cases, these needs were met by in-house systems (e.g., OMB's IBM 370/155); in other cases EOP activities used computers maintained by other Government organizations (e.g., NIH, DOD); in other cases commercial time-sharing services were utilized.

All of the EOP information processing applications will be transferred to the IPS in an evolutionary manner. The initial focus will be on transferring the data processing applications currently resident on the IBM 370/155. The existing facility will remain in place until the applications are operating successfully on the IPS. The timing and sequencing for transferring the other EOP data processing applications to the IPS has not yet been established.

In a similar manner, the use of the IPS for new applications will be evolutionary. The initial focus will be on electronic mail, document preparation, correspondence management, calendar maintenance and other applications of office automation technology.

1.3 Current Environment

1.3.1 OMB Applications

Well over half of the current information system activity within the EOP is associated with OMB applications. These applications are currently being supported via an IBM 370/155 with 2 million bytes of memory, 1.8 billion bytes of disk storage, six 9-track tape drives, two 1403 line printers and two Xerox 1200 page printers. The communications interface to the system is provided by a Memorex 1270 and two IBM 3272 control units which support about 75 directly coupled (i.e., hard wired) terminal/printers.

The system normally operates on a two-shift-per-day, five-day-per-week schedule. This schedule is expanded during peak workload periods (typically November thru January) to include a third shift and weekend operations.

An average of 6500 batch jobs and 2500 time-sharing sessions are processed by the system each month. The following table provides an indication of the nature of the batch portion of the workload.

AVG. PROBLEM			
CATEGORY	PROGRAM CPU	AVG. CORE	PROGRAM
	TIME (SEC)	PER PROGRAM	DISTRIBUTION
I	5	80K	18%
II	12	90K	24%
III	32	120K	30%
IV	115	150K	22%
V	210	250K	6%

Although a significant portion of the workload is batch, the overwhelming majority of users access and use the system via the time-sharing interface (TSO). The following table provides an indication of the scope of the users and uses of the time-sharing facilities.

		Text Processing	Applic.	Applic.
	Data	(Memos, Manuals,	System	System
	Preparation	System Doc., etc.)	Devel.	Operat.
Data Entry Specialists	X	X		
.....				
Secretaries	X	X		
.....				
System Analysts and Programmers	X	X	X	X
.....				
End-Users (e.g., Budget Specialists)	X	X	X	X

These users and uses depend, to a large degree, on system capabilities such as:

- o full-screen editing
- o copy data sets
- o generation data sets
- o partitioned data sets
- o command procedures
- o ATMS and TSO edit/format

The two major applications are primarily oriented towards support of the OMB budget formulation/preparation process. These two applications are the Budget Preparation System (BPS) and the Budget Status System (BSS).

a. The Budget Preparation System (BPS)

The BPS is the oldest, largest, and most complex computer-based application within OMB. Further, this application has achieved a much greater degree of institutional visibility than any other OMB application. As the name implies, the BPS is primarily oriented toward support of the budget preparation process.

While BPS operates primarily in a batch mode, it provides an extensive interactive update capability and a limited interactive reporting capability. The BPS consists of approximately 400 COBOL programs which collectively provide the capability to maintain the budget data base and generate reports against that data base. This data base is comprised of the following files.

Master Account Title (MAT) File

This file contains identifying information and titles for each appropriation account in the budget.

Appropriation Account Data (AAD) File

This file contains identifying information and data (i.e., prior year, current year, and budget year estimates) for each appropriation account in the budget. The data elements and organization of this file relate directly to the budget schedules set forth in OMB Circular A-11.

Receipt Account Title (RAT) File

This file contains identifying information and titles for each receipt account in the budget.

Receipt Account Data (RAD) File

This file contains identifying information and data (prior year, current year, and budget year estimates of receipts) for each receipt account in the budget.

The Budget Preparation Branch of the Budget Review Division (BRD) serves as the administrator of the budget data base and, as such, represents the principal user of the BPS. This branch, however, is by no means the only user of this application. BPS reports are used by other branches in BRD and the Program Divisions for analysis of various aspects of the Budget. The interactive update capability is used by the Department of Agriculture to prepare and submit budget estimates. BPS data (i.e., the budget data base) and reports are transmitted to the Congressional Budget Office (CBO), budget committees in both the House and the Senate, and the General Accounting Office to facilitate congressional analysis of the President's Budget.

b. The Budget Status System (BSS)

The BSS is a generalized data base management system specifically tailored to handle budget data. The BSS, implemented in PL/I, operates both in batch and interactive mode. Whereas the BPS is designed to support a specific budget application and serves a relatively small user constituency, the BSS is designed to support a broad spectrum of budget applications and serves a relatively large user constituency. The BSS is used primarily by budget examiners to (1) track the status of appropriation accounts, (2) analyze agency inputs (i.e., budget requests) submitted as part of the fall review, spring preview, and mid-year review, and (3) prepare the special analyses of Federal social (e.g., education), research and development, and environmental programs. The BSS is also used by BRD staff for a number of applications including the following:

Fiscal Analysis Branch

Preparation of the Current Services budget and long range projection.

Resources Systems Branch

Analysis of ZBB decision unit subfunctions.

Budget Preparation Branch

To identify outlay effects over a five-year period from Congressional action on the President's budget requests; to analyze differences between CBO and OMB estimates of budget authority and outlays; to measure the outlay effects over a three-year period from Presidential vetoes and Congressional overrides; to track outlays reported to Treasury against agency plans on a monthly basis; to extract selected portions of the BPS data base for ad hoc analysis and special studies.

c. Other

There are a number of smaller applications which also support budget-related activities. These applications typically fall into one of two categories: Text Processing and Modelling. A representative example of an application in each of the two categories is presented below.

o Text Processing

The Catalog of Federal Domestic Assistance (CFDA) application supports the maintenance and publication of the CFDA document. This document, which is published each spring and updated each fall, contains a comprehensive listing and description of Federally-subsidized programs providing benefits to the American public. This application has a photocomposition capability which allows the output to be directly used as input to GPO's LINOTRON facility.

o Modelling

The VA Pension Model is a statistical modelling capability for estimating the short-term (five years) and long-range (twenty-five years) costs of the veterans' pension program.

1.3.2 Other EOP Applications

Other applications within the EOP utilize facilities/resources from a variety of sources including commercial timesharing services and computers belonging to other executive branch agencies. A representative list of these applications is presented below.

- o Congressional Liaison -- A legislative tracking system is used for analysis of prior and upcoming votes. A correspondence control system is used to track correspondence to the President and his staff from members of Congress.
- o Council of Economic Advisors -- A series of economic modelling applications are used for macro-economy forecasting using various econometric models both commercial (e.g., Wharton) and in-house; policy assumptions are tested; estimates of the future effects of exogenous inputs on various economic variable are obtained. Statistical analysis of economic time series is performed to estimate parameters of econometric relationships; small special purpose econometric models are run as needed; system uses the entire Federal economic data base.
- o Council on Environmental Quality -- Environmental data analysis is performed by CEQ's UPGRADE system, which supports studies of air and water quality, environmental health and natural resources. This interactive system, with excellent graphic capabilities, is used daily by several other agencies. Also active is an Environmental Impact Statement reporting system.
- o Council on Wage and Price Stability -- Does economic research for industry studies and wage/price monitoring; regressions, analysis of variance and forecasts for 8-10 staff economists. In another department, regression programs are run for 7-9 economists, based on product prices, costs, quantities, and socio-economic data published by Federal agencies.
- o National Security Council -- In support of the NSC decision-making process, the NSC Secretariat uses an action memoranda tracking and correspondence control system, ACTSTAT/NSCIF. Other applications service FOIA/Privacy Act requests, logging and retrieval of NSC policy decisions and studies, and various administrative tasks.
- o EOP Library -- The EOP Library has a library circulation control system which produces statistical usage reports and overdue notices; the library also makes use of external retrieval services including DIALOG, New York Times Information Bank, SCORPIO, and LEGIS.
- o Personnel Office -- The White House payroll system TPPIS performs the usual personnel and payroll functions for most employees on the '18 acres'. A talent inventory data bank, TIP, contains encoded resumes of some 33,000 job applicants, and a jobs base lists about 3,000 records of Presidential appointment and key policy positions.
- o Special Representative for Trade Negotiations -- Representative applications from a list of 16: STR document retrieval system; trade action monitoring and preparation of a calendar of pending actions; a directory of over 960 advisory group members; ISAR Advice system, for storage and retrieval of negotiating advice from industrial sector committees; and the STR centralized data base -- a statistical and reporting capability for GATT and U.S. annual imports trade and tariff data.

- o White House Files -- the Presidential correspondence log tracks outgoing correspondence generated by White House Staff for signature of the President; a Presidential address file tracks dignitaries met and visited; Presidential reports to Congress are tracked and controlled.
- o Vice President's Office -- A time analysis system is used to keep track of how the Vice President's time is allocated.
- o White House correspondence -- The White House Gift File is used to keep track of gifts to the President and his immediate family; the Referred Presidential Correspondence File documents Presidential correspondence referred to other agencies for action.

1.4 Expanded Services

In addition to providing capabilities to support existing applications, the IPS will provide capabilities for new applications which, for the most part, are not presently being supported. The initial focus in this regard will be on applications of data base management and office automation technologies.

1.4.1 Data Base Management

Within the context of this solicitation, the term "data base management system" (DBMS) is intended to connote an integrated system of hardware/software providing generalized capabilities for:

- o Defining the organization and content of a data base (i.e., one or more data files)
- o Generating a data base having the defined attributes
- o Modifying the data base (i.e., adding, deleting and changing records and files)
- o Producing outputs (e.g., tabular reports, graphs) which display the results of user-specified processes (e.g., selection, sorting, summarizing) performed on the data base.

The DBMS acquired via this solicitation will be a primary tool for the development of EOP applications. The principle (but not exclusive) user of this facility will be a small staff of EOP analysts/programmers. The major emphasis will be placed on the analysis and design phases of the application development process with a minimal amount of time available for actual implementation and maintenance.

Initially the applications and data bases will be small, relatively simple and tailored to reflect individual user needs rather than institutionalized to reflect the broader EOP corporate needs. The data will rarely be classified in a security sense, but generally will be considered sensitive requiring protection against unauthorized access. Some of these early applications will have very short life cycles while others may evolve over a period of time into larger and more institutional capabilities.

The viability of the DBMS will depend on the capability it provides for (1) expediting the initial implementation of applications and for accommodating incremental changes, and (2) reducing the requirement for a data processing specialist to serve as the "middle-man" between the end-user and the data.

1.4.2 Office Automation

Within the context of this solicitation, the term "office automation" is intended to connote an integrated system of hardware/software providing generalized capabilities for electronic mail, document preparation, correspondence management, and related applications. The following paragraphs describe examples of applications of the office automation capability that will be acquired via this solicitation.

Electronic Mail is a computer-based message store-and-forward capability that will be used as a primary vehicle for communication among members of the EOP staff. The sender will use office automation tools to formulate and the distribute the message to a specified group of recipients (e.g., senior members of the EOP staff). The recipients will be automatically notified of posted messages and can use office automation tools to query these messages by keyword, subject, sender, and other specified attributes. Either the sender or recipient can request that a copy of the message be cataloged and stored for subsequent use.

A Document Preparation Application will use office automation tools to prepare documents that range from simple memos entered, reviewed, and printed entirely at terminals that are typewriter replacements, to the relatively complex Budget Appendix that might be prepared and checked for information content and then forwarded to specialists for publication. Automated control procedures will be used to catalog, store, query and retrieve documents and information about documents.

A Correspondence Management Application will categorize and catalog incoming correspondence, and update a data base from which statistical information could be derived. Items, such as requests for assistance in dealing with federal agencies, will be referred and then monitored for disposition.

Mailing Lists will be derived and maintained. Sublists could be prepared according to specified criteria.

A general system for Status Tracking will be implemented to track items involved in a process (e.g., registered mail, preparation of issue memos, etc.).

A Bibliographic System for general key word abstract and full text retrieval will be implemented and used to construct and search files such as Presidential Press Releases, issue papers, and the like.

Scheduling Applications will use office automation tools to maintain "to do", calendar, and diary files. A "to do" file tentatively schedules resources. Portions of the file will be distributed as appropriate for review and comment. Commitments are made and items gravitate into a person's calendar file, which lists items scheduled to be done. Portions of the calendar will be distributed for review and comment. Events occur and migrate from the calendar file into the diary file so an historical record may be maintained.

This section addresses the EOP requirements for a data processing capability to support applications such as budget formulation, econometric modelling, and statistical analysis. These requirements encompass the following major functional areas:

Computation & Storage

This capability includes:

- an operating system and related facilities designed to support a large community of non-programming users in an interactive environment
- an end-user oriented file system for both on-line and archival storage
- a comprehensive collection of programming languages (COBOL, PL/I, FORTRAN), DBMS's, and related application development tools

Communications

A capability which supports a network of government-furnished teletype compatible terminals

Text Processing

A capability to facilitate the entry, editing, storage/retrieval, and printing (including phototypesetting) of textual information

These functional areas along with specific features listed as part of a particular area represent categories for convenience in describing EOP data processing requirements. These categories are not intended to impose any particular configuration, architecture, or packaging on vendor hardware/software. Therefore a feature described as a requirement of the text processing area (e.g. text storage and retrieval) could be met by a feature provided as part of the computation and storage area (e.g. the DMBS). The important consideration is not how the feature is packaged, but rather the capability that feature provides.

2.1 Projected Usage

The projected usage of the data processing resources specified herein is as follows:

Table 2.1 Projected Usage

Year	1st	2nd	3rd	4th	5th
Number Simultaneous Users	60	75	80	90	110
Total Number of Users	75	100	120	135	160
Number of on line DBMS files	22	54	108	210	262
Number of on line DBMS operations (per day)					
Queries	40	200	800	800	800
Reports	25	50	80	140	200
Updates	500	750	1000	2000	2500
Batch Jobs/Hour	45	65	75	80	95
On-line Storage (in characters)	2.4B	4.3B	7.2B	10B	12B

An executive (i.e., operating system, monitor, supervisory control program, etc.) shall be provided to allocate and control all system resources, both hardware and software, specified herein.

2.2.1 User Interface

2.2.1.1 General

The executive shall provide the interface between the user and the system. This executive shall include a command language to provide:

- o Access to the system.
- o Access to all of the utilities required to build, debug, modify, maintain, and control the execution of user programs.
- o Access to and control over subsystems and libraries.
- o Initiation and control of batch operations.
- o Access to all of the utilities required to create, attach, update, rename, detach, save, purge, copy, and archive files.
- o Queries to obtain information about the status of the system or a particular job being processed by the system.

The vendor shall identify and describe the individual commands which collectively comprise the command repertoire.

2.2.1.2 Access Control Security Features

Capabilities to prevent unauthorized users from obtaining services from the system shall be provided. These capabilities shall include:

- o User identification/verification (e.g., passwords) -- Procedures shall be provided for identifying valid users.
- o Audit logs -- User identity, hardware and software accessed, and other relevant information shall be recorded. Attempts to gain unauthorized access to system resources shall be logged.
- o System facilities -- Access control to system hardware and software resources shall be provided by a capability based on the user identification/verification capabilities. The capability to control access for an individual user and for groups of users is required.
- o Access Control Reporting -- A set of standard reports (which may include console messages) from the system tailored to providing and highlighting information pertinent to managing and maintaining secure access to the system facilities is required.

2.2.1.3 Command Language Interpreter

The command language interpreter shall be capable of accepting commands from a conversational terminal, a user's program, and from a file.

2.2.1.4 Command Language

The commands shall be English-like statements consisting of words, mnemonics, or abbreviations which are descriptive of the facility being activated. The system shall provide special features to assist the novice users. Such features shall include:

- o Cues to indicate when the system is waiting for input.
- o Facilities to assist the user in obtaining detailed explanation of commands.
- o Editing facilities which permit the user to correct errors in his input.

While the language shall be oriented toward the novice user, it shall nonetheless permit the more experienced users to utilize their familiarity of the system to expedite their work. Features provided shall include:

- o Option to abbreviate commands.
- o Facilities to suppress cues and informative messages.

2.2.2 Programming Language Translators

2.2.2.1 Compilers

All of the required compilers shall provide error diagnostics. The proposed software shall permit the terminal user to submit programs for compilation and execution, with results returned to the terminal user. The following are required:

- o ANSI FORTRAN. (X3.9-1966.)
- o ANSI PL/I. (X3.53-1976.)
- o FIPS PUB 21-1 Federal Standard COBOL.

2.2.2.2 Interpreters or Incremental Compilers

All of these translators shall provide error diagnostics and shall provide for line by line execution of programs. *The following are desirable:*

- o *BASIC*
- o *APL.*

2.2.3 Data Base Management

A Data Base Management System (DBMS) with the following features shall be provided.

2.2.3.1 Report Writer and On-Line Query/Report

An end-user English oriented report writer that provides automatic headings, footings, page numbering, sorting, break totals, statistical (e.g., count, max, min, sum, average, etc.) , and post selection processing capability shall be provided. This report writer shall have boolean and arithmetic operators which allow qualification on any data element in the data base.

It is desirable that the report writer allow reading and writing of non-DBMS files.

An English-oriented on-line query/report feature that provides Boolean and arithmetic operators, sorting, break totalling, and the ability to qualify on any data element shall be provided. This query/report feature shall notify the user of the number of records retrieved and allow further qualifying of that set.

The capability to retrieve data element values from more than one related data base file in the same query and to use these elements in a single report is desirable.

The report writer and on-line query/report feature shall have features that facilitate use by the non-programming user who has received only basic instruction. In addition, the report writer and the on-line query/report feature shall have the same syntax (e.g., same verbs, position of verbs, etc.). The report writer and on-line query/report may be the same or separate software packages.

2.2.3.2 On-Line Update

An on-line update feature to add, change, and delete records using the vendor supplied language shall be provided. It will provide for simple editing of alphabetic and numeric data elements.

It is desirable that the editing function include legal values, date conversions/formatting, and table values.

It is desirable that the user can perform delete and change functions on groups of records by qualifying those records based on some data element value (e.g., delete all records where the data element STATE CODE is equal to "CA").

2.2.3.3 Macro Definition

The capability to define a set of queries or reports as DBMS Macro commands which can be invoked in the on-line query/report, on-line update, and report writing functions shall be provided.

2.2.3.4 Data Manipulation Language

A Data Manipulation Language (DML) with an interface to COBOL and PL/I shall be provided.

It is desirable that a DML interface to FORTRAN be provided.

It is mandatory that the DML provide the following capabilities:

- o Data base maintenance facilities (e.g., add, change, and delete for records and data element values).
- o Data retrieval facilities for records and data element values.

It is desirable that the DML provide the following capabilities:

- o Direct support of retrieval based on boolean or arithmetic operators against any data element in the data base.*
- o End-user oriented diagnostic messages.*
- o Direct support of sorted retrieval of records on more than one data element (e.g., sort records qualified in descending order by data element 1, data element 2, and data element 3..... major to minor).*
- o Provides information on the number of records that qualify in a particular retrieval operation with this information directly available to the user program for use in constructing various operations.*

2.2.3.5 Data Independence

The DBMS shall support Data Independence by providing the ability to make changes to a data base description (e.g., add a data element) without impact on existing programs. The ability to add data elements to an existing data base shall be provided. A vendor supplied utility for reloading the data base, if reloading is necessary for adding new data elements, shall be provided.

It is desirable that other data description changes (e.g. changing the length of a data element, and deleting data elements) can be made without impacting existing programs which reference that data base unless an attribute upon which those programs depend has been changed.

2.2.3.6 Data Description Language

A Data Description Language for creation of data base files shall be provided. *The ability to specify legal values, edit criteria, table values, and date conversions is desirable.*

It is desirable that the Data Description Language provide the following capabilities:

- o Support of a variety of data element formats (e.g., alpha, numeric, date conversion, packed decimal, binary, etc.)*
- o Support of a variety of data element value storage criteria (e.g., Null value suppression, fixed length, variable length, encryption, etc.)*
- o Support of a variety of data element constructions (e.g., multivalued, periodic groupings, sub division of a data element into one or more data elements requiring a value to be entered only for the data element being sub divided, etc.)*
- o Support of on line data base definition via a end-user oriented interactive dialogue.*

2.2.3.7 Data Loading

It is desirable that a data file loading capability (on-line and high volume) be provided along with the ability to specify simple edit criteria (e.g., alpha and numeric) at the data element level. This capability must provide for conversion of existing user files to DBMS data base files without developing user conversion programs.

2.2.3.8 Data Dictionary/Directory

The capability to obtain a directory listing of data element names and attributes (e.g., numeric, alphabetic, length, and name) for DBMS files shall be provided.

It is desirable that a full Data Dictionary/Directory capability be provided (e.g., Contents: data element definitions, legal codes and values, report occurrence, forms occurrence, user responsibility, etc.). The capability to produce a set of standard reports of dictionary contents is desirable. The user shall be capable of accessing the dictionary contents for specialized user written reports of the dictionary contents.

It is desirable that the Data Dictionary/Directory be integrated with the on-line query and report writers specified in section 2.2.3.1. Integration shall ensure that the Data Dictionary/Directory is in complete agreement with the Data Description of any DBMS file.

2.2.3.9 Data Base Administration

The capability to obtain data base utilization reporting for mass storage utilization and organization of DBMS files shall be provided.

It is desirable that these reports indicate for each data base file such items as the number of records, mass storage utilized, date of last update, date of creation, and other information relevant to the management of data base files.

2.2.3.10 Data Base Security

Security protection of the data base at the file level and at the data element level shall be provided.

The capability to obtain reports that show security assignments at the file level (e.g., read/update authorities for specific data base files) and at the data element level shall be provided.

The capability to obtain security reports showing attempts at unauthorized access of data base files at the file and element level is desirable.

2.2.3.11 Data Base Integrity

Backup facilities for preserving the integrity of data bases shall be provided.

2.2.3.12 Data Base Design

The DBMS shall provide flexibility in design alternatives by:

- o supporting retrieval on keys
- o supporting retrieval based on qualifying any data element in the data base
- o supporting cross-file relationships to reduce data redundancy and to improve user accessibility
- o allowing for growth in the number of files, number of records, and number of data elements per file
- o facilitating enhancements, changes, and modifications to the data base at both the file and data element level
- o supporting concurrent multi-user accessing, updating, and reporting from a given DBMS file or files.

It is desirable that the DBMS support retrieval on strings within a textual data element.

2.2.4 File System

A file system shall be provided for storage and retrieval of data on external I/O devices. The system shall provide a means for the users to assemble this data into one or more files and to save (i.e. *make system resident*) these files for subsequent use.

The capability to have different versions (e.g., cycles, generations, etc.) of the same file is required.

Access to a file shall be by the symbolic name assigned by the user at the time the file was created. The capability to reference a group of files (e.g., program and data libraries) by a single user-assigned name is required.

The file system shall include facilities for access protection, space management, file structuring, and protection against system and operational mishaps.

2.2.4.1 Access Protection

The file system shall provide an effective access protection scheme to preserve the integrity of the files against unauthorized users and uses. The protection privileges shall include:

- o Status (ability to obtain information respecting the existence, usage, and activity of a file).
- o Read.
- o Write.
- o Append.
- o Rename
- o Purge
- o Execute

The access scheme shall allow a file to be shared concurrently among any number of authorized users, but shall protect against conflicts which may result from readers and writers of that file.

2.2.4.2 Space Management

The file system shall provide software to automatically monitor and manage the storage space within which files and file directories reside. This software shall:

- a. Dynamically allocate file and directory space on a demand basis.
- b. Dynamically reclaim and reallocate previously used file and directory space no longer in use.
- c. Dynamically enforce installation and user specified limitations respecting space allocation and/or file size for individuals or groups of users.

The file allocation unit size shall be adjustable by software parameters. The space management software shall also provide a mechanism for automatically archiving files based on installation and/or user specified file usage parameters.

2.2.4.3 File Structures

The file system shall include software to allow the programming user, at his option, to specify the logical organization of his file. This software shall support, as a minimum requirement, sequential, index-sequential, and random organizations. The choice of a logical organization shall in no way be constrained by system restrictions respecting the particular physical organization being utilized.

2.2.4.4 File Utilities

The file manipulative commands and utilities provided shall perform and control the following functions:

- o file creation
- o attaching (assigning) files to user jobs
- o updating (changing existing records and/or appending new records) files
- o renaming files
- o detaching (releasing) files from user jobs
- o saving files
- o purging files
- o copying files
- o archiving files

2.2.4.5 Protection against System and Operational Failures

Software utilities shall be provided to dump and restore file system information as required to protect against accidental destruction in the event of a system failure or operational mishap. These utilities shall function in a normal systems operation environment and shall provide the following features:

- o Generate backup copies of newly created or modified files at installation specified time schedules. This schedule shall be adjustable via software parameter(s).
- o Identify the specific files which may have been affected by a system failure or operational mishap.
- o Selectively restore the entire file system or specified individual files are required to recover from a system failure or operational mishap.

2.2.5 Utilities, Subsystems and Libraries

The vendor shall identify and describe the individual facilities which comprise the utilities, libraries and subsystems being furnished. This software shall include:

2.2.5.1 Applications Library

A collection of programs oriented towards the nonprogramming terminal user shall be provided. As a minimum, these applications programs shall include mathematical, statistical, plotting and business applications programs. *A time-series package (with forecasting method and transform variables), and a linear-programming package (with integer programming, sensitivity testing, and zero-sum/two person games) are desirable.*

These programs shall include a statistical package capable of operating in both batch and interactive mode which supports the following features:

- o Multi-level prompting, such as:
 1. Long form -- extensive description for user unfamiliar with system and having no DP background
 2. Intermediate form -- terse description for user familiar with system but needing a reminder of options available
 3. Short form -- abbreviated for experienced user
- o Statistical capability to include:
 1. Univariate descriptive statistics (e.g., arithmetic mean and standard deviation)
 2. Multivariate contingency table analysis (e.g., column percent, row percent and chi-squared coefficient and significance)
 3. Multivariate correlation analysis (e.g., Pearson product-moment correlation)
 4. Multivariate regression analysis (e.g., ordinary least squares)
- o Additional capabilities which must be available in batch mode include:
 1. Scatter diagram plotting,
 2. Histogram plotting,
 3. Discriminate Analysis,
 4. Factor Analysis

2.2.5.2 Applications Program Development Subsystem

A system of programs and utilities to facilitate application program development and maintenance shall be provided. This software, intended for use by application programmers, shall include:

- o A collection of mathematical, statistical, graphic, and business subroutines and support packages for incorporation into the user programs.
- o Source program editing, maintenance and update utilities.
- o Facilities for building and maintaining user-defined program libraries, facilities which allow program externals to be satisfied from user-libraries, facilities for modularizing user programs, and facilities to dynamically load and execute program modules.

It is desirable that an on-line command-driven, symbolic debugging utility be provided for each language (COBOL, Fortran, PL/I) which allows the user to dynamically examine and modify any portion of his program and which performs searches, gives conditional dumps and links to user-coded debugging routines at user-defined program breakpoints.

2.2.5.3 Sort

A sort facility shall be provided that arranges the records of one or more files according to a user specified sequence. The user shall be able to designate sort keys (in either ascending or descending order) on which the records are sorted. The system shall accommodate at least 30 sort keys each of which is up to 35 characters in length.

2.2.6 Resource Accounting

Accounting software shall be provided which dynamically collects, maintains, and outputs accurate information required to identify users of the system along with a complete accounting of all the resources (e.g. CPU, central memory, I/O, terminal connect times, file storage) utilized by each individual user.

The accounting software shall provide the appropriate interfaces and linkages to conveniently permit an installation supplied algorithm to be utilized in the computation of charges. This algorithm will be based upon the resources utilized by the job.

The accounting software shall perform the following functions.

2.2.6.1 Controlling

The user's access to the system shall be strictly controlled by software which relates user-ID's (an alphanumeric identifier) to account numbers and funds available to each account. Only those users who supply an account number (for a solvent account) and a valid user-ID (an ID validated for use with that account) are to be permitted access to the system.

2.2.6.2 Charging

The charges accrued by each user job shall be computed immediately upon completion of that job.

2.2.6.3 Recording

Job charges, along with the resource utilization information upon which the charges are based, shall be dynamically recorded in an "accounts file" maintained by the system for subsequent audit and analysis by computer center staff. The audit and analysis functions shall be performed by application programs. An access protection scheme shall be provided to preserve integrity of the "accounts file" against unauthorized users and uses. Software shall also be provided for automatically creating backup copies of this file at installation specified intervals to protect against accidental destruction in the event of a system failure or operational mishap.

2.2.6.4 Reporting

Job charges, along with the resource utilization information upon which the charges are based, shall be reported to the user immediately upon completion of the user's job. The user shall also be provided software utilities and commands which permit him to dynamically query the system to obtain accurate and up-to-date information respecting the status (i.e., funds available, funds spent to date, resources utilized to date, and number of jobs processed to date) of his accounts. The system shall provide an effective access protection scheme to protect against the unauthorized access to user's accounting information.

In addition, a utility shall be provided which produces accurate and up-to-date billing and utilization summary reports by user and account.

2.2.7 Resource Scheduling

2.2.7.1 Job Mix

The job mix will consist primarily of interactive job streams in which job definition and decisions affecting job processing are dynamically made by the user during job execution. An interactive job stream will consist of the commands issued by a user from a terminal, a program, or from a file. While the large majority of the jobs will be interactive, there will none-the-less be a significant batch workload as well. The system shall be able to accommodate programs up to 512k bytes in size. The mean program size is projected to be 140K bytes.

2.2.7.2 Scheduling

Scheduling priorities shall be based upon the resources (CPU, central memory, and I/O) required to meet service requests; the smaller the resources required, the higher the priority. The characteristics of other active jobs shall in no way degrade the system's responsiveness to short interactions below the criteria specified in section 2.2.8. The scheduler shall be flexible so as to facilitate changes in the manner in which priorities are determined and in the manner in which system resources are utilized.

2.2.8 Response Requirements

It is desirable for the system to meet the response requirements specified herein for at least 60 logged-in interactive users each of which will be issuing service requests at an average rate of once every 12 seconds. Within the context of these specifications, response time is defined as the time interval between the depression of the end-of-message key (which causes the service request to be transmitted from the terminal to the system) and the display of the first character of meaningful output (output indicating that the service request has been satisfied) at the terminal. The specific job mix that will be used to evaluate system response is explicitly described as part of the benchmark. The response time requirements are as follows:

2.2.8.1 Instantaneous Response

The system shall perform the following category of functions within 1 second 95% of the time:

- o Inquiry respecting the status of a job.*
- o Output abort.*
- o Accessing a subsystem.*

2.2.8.2 Fast Response

The system shall perform the following category of functions within 3 seconds 95% of the time:

- o Inquiry respecting the names of files currently attached to a user job.*
- o Attaching a file to a user job.*
- o Purging a file.*
- o Saving a file.*
- o Logging on and validating each user for access to the system.*
- o Logging out.*
- o Acknowledging of the submission of a batch job.*

2.2.8.3 Quick Response

The system shall perform the following category of functions within 6 seconds 95% of the time:

- o Loading and executing a small user program. The CPU and central memory requirements (expressed here in terms of IBM 370/155 units) for executing a small user program are projected as a normal distribution around a mean of .6 CPU problem programming seconds and 150K central memory bytes.*
- o For the DBMS:*
 - adding, changing or deleting a DBMS record*
 - simple DBMS query on a key element qualifying one record in a 20,000 record data base.*

2.2.8.4 Medium Response

The system shall perform the following category of functions within 20 seconds 95% of the time:

- o Loading and executing a medium sized user program. The CPU and central memory requirements (expressed here in terms of IBM 370/155 units) for executing a medium sized user program are projected as a normal distribution around a mean of two CPU problem programming seconds and 150K central memory bytes.*
- o For the DBMS:*
 - Adding 100 records to a DBMS data base file (35 data elements per record, 210 characters per record)*
 - Querying with simple Boolean based on qualifying 50 records in a 10,000 record file.*
 - Changing a data element value for 200 records in a DBMS file based on qualifying the 200 records (e.g., for all records with the State equal to "California", change category code from "1" to "2").*
 - Delete a DBMS file.*

2.2.8.5 Slow Response

The system shall perform the following category of functions within 60 seconds 95% of the time:

- o Loading and executing a large user program. The CPU and central memory requirements (expressed here in terms of IBM 370/155 units) for executing a large user program are projected as a normal distribution around a mean of six CPU problem programming seconds and 150K central memory bytes.*
- o For the DBMS:*
 - Querying such that qualifying 50 records from two related DBMS files containing a total of 20,000 records. Qualifying shall be done by a boolean operation on one file with related records from the other file participating in the report (e.g., qualifying on two fields in file one, total and break total on field from file 2, sort on two fields in file 1, and display data elements, totals, and break totals from both files including column headings).*

2.2.8.6 Delayed Response

The system shall perform the following category of functions within 120 seconds 95% of the time:

Loading and executing a CPU bound user program. The CPU and central memory requirements (expressed here in terms of IBM 370/155 units) for executing a CPU bound user program are projected as a normal distribution around a mean of 12 CPU problem programming seconds and 150K central memory bytes.

- o For the DBMS:*

Simple querying a DBMS file which reads every record in the file of 100,000 records.

2.2.8.7 Background (Batch)

The system shall be capable of processing a minimum of 10 batch jobs concurrently while providing the specified response to the conversational user community. Program sizes up to 512K bytes shall be supported. If paging or segmentation is required to support programs of this size, it must be accomplished automatically such that system calls for overlays are created by system hardware and software without requiring special coding practices by the programming user.

2.3 Communications Functions

2.3.1 General

The primary function of the communications interface is to provide a data path between the terminal user and the services available via the office automation facility of the IPS.

The terminal user will communicate with the system via interactive asynchronous ASCII terminals. These terminals, along with modems and lines, will be furnished by the Government.

2.3.2 Line Control

The vendor shall initially provide a minimum 75 asynchronous ports and associated facilities as required to support the following features

- o Half and full duplex mode
- o Parity checking and generation for odd, even, and no parity
- o ASCII communications protocol
- o The 128 ASCII character code set
- o Character size of 7 and 8 bits
- o Speeds of 110, 300, 1200, 2400, 4800, and 9600 bps
- o Switched (dial-up) and non-switched lines

All interfaces such as modem terminals and line drivers are to be EIA RS-232C.

The system must provide at least

- o 15 ports for 300 bps lines
- o 20 ports for 1200 bps lines
- o 40 ports for 4800 bps lines

2.3.3 Desirable Features

2.3.3.1 CCITT X.25 Hardware and Software

At least one I/O interface which meets the CCITT X.25 specifications

2.3.3.2 Terminal Protocols

IBM 2741 and compatible units. IBM 2780 and compatible units.

Automatic speed detection/selection for the following speeds: 150, 300, 1200, 4800, and 9600 bps.

2.4 Text Processing Functions

2.4.1 General

The text processing system described herein is a system which will process unformatted textual data for online editing. Key characteristics of this system include:

- o Computer control and processing
- o Direct keying of input, and
- o Multi-file editing.

The software proposed shall make use of remote and local CRT's and typewriter-like devices for data entry, editing, and formatting. It shall provide output capabilities to printers, hardcopy terminals, and CRT's.

Because of the varied skill level of anticipated users and operators, the command language and structure shall be *simplistic and easy to use* (i.e., suitable for use by non-computer oriented terminal operators without an extensive learning or training period).

The text editor shall allow character string searches and substitution, text insertion, deletion, movement, modification, and printing capabilities.

The following definitions are used throughout this section:

Unit (data field) -- The smallest identifiable or definable string of characters in the system. This may be as large as a single line of text.

Paragraph -- A fixed group or block of one or more units.

Document -- An organized collection of paragraphs with associated control information.

Text -- The language used to make up a unit, paragraph, or document.

2.4.2 Device Support

The text processing system shall be capable of accepting input from a variety of devices including:

- o Typewriter-like terminal devices
- o CRT's.
- o Batch input devices, such as magnetic tape and card devices.

The text processing system shall support a variety of output devices including:

- o Typewriter-like terminal devices.
- o Low- and high-speed printer devices including upper/lower case capabilities.
- o Magnetic tape and disk devices.
- o CRT's.

2.4.3 Text Entry and Edit

The system shall provide for one-time keying of text. Rekeying shall be necessary only to those portions of text that are changed. The system shall include at least the following entry and editing capabilities:

- o Free-form entry

The system shall define default left and right margins and entry of text shall be free style without concern for margin bell. Controls within the system shall allow an operator to specify left and right margins for all paragraphs within the document and for individual paragraphs as selected by the operator.

- o Search

The capability shall exist for the user to search through a document for a specified character string. When found, the text at that location shall be displayed. If the string is not found, a message to that effect shall be displayed. The capability to list the location of all occurrences of a specified string is required.

- o Replace

The ability to replace or change the occurrences of an old character string with a new defined character string is required. The capability to replace all occurrences of the old character string or selected occurrences is required.

- o Add

The ability to add characters, words, lines, paragraphs, and other delineated character strings to an existing document is required.

- o Delete

The ability to delete characters, words, lines, paragraphs, and other delineated character strings is required. Text subsequent to and on subsequent lines shall be closed up where a deletion has been made.

- o Move Text

The ability to move and/or copy a defined block of text from one location to another in the text is required. "Move" means that the defined block is deleted from its old location and inserted at the new. A "copy" operation shall not delete text from the original location.

- o Full Word Wrap

Words displayed on the terminal during editing, and as a result of being called up from a document to be edited shall never be broken by the system at the end of a line.

The system shall provide a simplistic command language, which is suitable for use by non-computer oriented terminal operators. The language shall be simple, so that an extensive learning or training period is not required. The following command functions are required:

- o Save/Retrieve

The ability to store text, to allow it to be given a discrete identification for recall and subsequent use.

- o Purge

The ability to purge a document from the system by document name and optionally by password if one is associated with that document.

- o Replace

The capability to replace a document with a new, updated, or modified version.

- o Lock

The capability to lock out other operators while a document is being updated and to unlock that document when the update is complete.

- o Archive

The capability to permit documents to be transferred to magnetic tape. The capability shall also exist to retrieve the archived document back into the system. Information regarding archived documents, including name, date & time archived, and any other identifying characteristics, shall be available to the operator on demand.

- o Spelling Checker

The capability to verify the spelling of words in a document via a system-supplied dictionary is desirable.

The system shall accommodate documents containing up to 1 million characters.

2.4.4 Text Formatting

The proposed system shall provide mechanisms, such as control codes which may be embedded within the text, for the purpose of defining and controlling text format. These control functions shall provide automatic pagination and shall include:

- o Automatic Page Numbering

A facility shall exist within the system to provide automatic page numbering. User options shall exist to allow starting page number and the placement of page numbers (i.e., within headings, footings, or the body of the text) to be specified.

- o Headers and Footers

A facility to permit information to be printed at the top or bottom of each page of a document, and optionally centered.

- o Text Grouping

A capability to prevent a block of text in a document from being split and printed on two pages.

- o Spacing

A facility to allow an operator to specify the number of blank lines to be left (e.g., for separating sections of text or to leave space for the insertion of charts or illustrations) shall be available.

- o Horizontal Justification

Right line justification and the option to alternate between right justification and normal ragged right margins.

- o Tabbing

The editor shall support the definition and display of at least 15 tab positions in the text.

- o Hyphenation

A user expandable hyphenation dictionary is desirable.

2.4.5 Text Storage and Retrieval

2.4.5.1 General

The proposed system shall permit users to retrieve information in text data bases according to specified criteria.

2.4.5.2 Structure

It is desirable that the structure of the text data base be such that data stored therein can be identified (and retrieved) at the field, paragraph, document, and data base levels. This identification criterion shall be such that cross-referencing between data bases via concatenations can be accomplished with a single query.

2.4.5.3 Automatic Indexing

Information used in this organization shall be constantly indexed and organized to facilitate the retrieval of relevant data. Relevance varies depending upon the activities of the member or activity seeking textual material to fulfill their part of the organizational goals and objectives. Therefore, the capability shall exist within the system to provide automatic indexing of all words within the data base.

2.4.5.4 File Access and Management Capability

It is desirable that the standard services of the operating system for file access and management be used to support the text storage and retrieval system.

2.4.5.5 Query Capability

It is desirable that the proposed system for text storage and retrieval provide a facility to search and retrieve documents in interactive dialog between the user and the system. This capability shall include:

- o Keyed Searches - assignment of words, word pairs, or phrases as index terms or keys to textual data*

- o Proximity Searching - rapid searching of words in text. Users shall be able to specify word distance conditions (e.g., the string "John" immediately followed by the string "Smith" or the string "John" followed by any intervening string followed by "Smith")*

It is desirable that a capability be provided for matching of keys or index terms against a thesaurus for indexing control.

It is desirable that queries be storable so as to minimize the necessity to rekey recurring query procedures

2.4.5.6 Data Base Creation and Maintenance

It shall be possible to build and maintain data bases utilizing the DBMS facilities specified in section 2.2.3.

2.4.6 Text Markup Capability

The ability to define arbitrary strings of characters, to save them permanently, and to retrieve and insert them in the text is required. The primary use of this feature will be to define blocks of formatting commands, typographic commands, and boilerplate text such that they can be inserted in one operation.

2.4.7 Printing and Photocomposition

2.4.7.1 Local Printing

The proposed system shall provide mechanisms to print/display all or portions of a formatted document at teletype compatible typewriter-like and CRT terminal devices, and at centrally located printers that are shared among many users.

The system shall ignore any control codes which are not applicable to the designated output device.

2.4.7.2 Photocomposition

Introduction

Documents which are to be typeset will be sent to the Government Printing Office (GPO) for processing through their automated photocomposition system. Since the necessary control codes are entered into the document either manually or by a user-written program, no composition subsystem is required to be resident in the Data Processing system.

The Data Processing system, however, must have the capability of recording a data file on 9 track unlabelled magnetic tape, 1200' or 2400' X 1/2" reel at a density of 800 or 1600 BPI. The data will be unblocked and consist of fixed length records containing 100 to 3,000 characters. The last record will be padded with blanks. These records will not contain a block or record count field.

Structure of Full Text Data Base (FTDB)

The data in a document is broken into data elements (fields). Each data element of like kind is assigned a given locator number within a specified format number. All data following a format/locator tag code until encountering another locator tag is considered to be included in that data element. A data element may vary from a few characters to several thousand characters in length. Although the locator and format codes are the primary function codes in a FTDB, several other function codes are also used. The list of control codes and their given function is given in Table 2.4.7.2

Composition System for Line Printer

A Line Printer Composition Program and a Format Parameter Maintenance Program are desirable. These programs shall have the following features.

The Line Printer Composition Program will accept as input the structured full text data base and a parameter file containing the composition specifications for all formats contained in the structured full text data base. The program will produce a printout of the textual data contained in the data file formatted in accordance with the specifications stored in the parameter file.

The parameter maintenance will allow entry of new formats into the system. It will also provide for the modification of formats resident in the system. The system input to the Parameter Maintenance Program shall be from punched cards, magnetic tape, or terminal. The parameter "cards" shall contain the parameter values specified in the following paragraphs.

The parameter file is made up of formats. Each format contains 99 locators. Each locator contains the print specifications for the data that follows that particular locator on input.

Each locator "card" will contain the following fields which define a particular print specification:

<u>Field</u>	<u>Value Limits</u>	<u>Remarks</u>
Leading	0-4	Number of blank lines between print lines.
Bottom Leading	0-6	Minimum number of blank lines below the data element tagged on input by this locator.
Top Leading	0-6	Minimum number of blank lines above the data element tagged on input by this locator. <i>Note:</i> Leading between locators equals the greatest of the top leading of present locator or bottom of previous locator.
Line Length	1-132	Number of characters in line (measured from left margin)
Primary Indent	0-50	Number of spaces from left the first line of locator is indented.
Line Numbers	0-1	0 - No 1 - Yes
Secondary Indent	0-50	Number of spaces from left second and all succeeding lines of locator are indented.
Paragraph Lead	0-4	Number of lines to skip after encountering end of paragraph.
Type face	1-2	Type face 1 is roman. Type face 2 is italic - underline.
Line Type	1-3	Line Type 1 flush left Line Type 2 flush right Line Type 3 center.
Footnote	0-1	0 - locator is not a footnote 1 - locator is footnote

Input: The input file will be in full text data base (FTDB) structure. The structure of each function code and the operation that this program is to perform upon encountering it is given in Table 2.4.7.1.

The bit configuration assigned to the character and function codes can vary from file to file. The structure, however, will always be the same so that a translation table must be included in the program. The translate tables may be stored on magnetic tape or disk. The system should permit up to ten tables to be resident in the system. It shall be possible to key a new table or modify one of the present tables from a terminal or computer console. There shall be 256 entries in each table and they will be keyed in the following form: XX : yy

Where XX is the input code of the character and yy is the internal system code for the same character. The typeset character complement of each job to be processed may exceed the characters available on the "print chain" of the printer. A character for which there is no corresponding character on the printer can be translated to a selected alternate by making the necessary modification to the translate table described above.

Output: The printout produced by the program will be single column text (and "spaced" tabular). Page size will be controlled by printer tapes, etc. No "widow" logic will be required. Lines will be formatted as described in the section on input. Characters printed will be a function of the "print chain" mounted on the printer and the translate table defined above.

TABLE 2.4.7.1

<u>Function Code</u>	<u>Number of Characters</u>	<u>Unit</u>	<u>Can it be Proceeded by Precedence Code</u>	<u>Function to be Performed</u>
Precedence	None	N/A	N/A	Escape Code.
Word Space	None	N/A	No	Word Break -- used in determining line ending.
Locator	2	#	Yes	Tags start of data element. Composition specifications are stored in parameter file for the locator number called out. There can be 99 locators in any given format. The locator called out remains in effect until another locator, a format subformat leader code or end of file is encountered.
End of Paragraph	None	N/A	Yes	Indicates end of paragraph. Line should be ended and following line indented to the primary indent spec for locator in effect. Between paragraph leading is inserted before printing the next line.
Tab	None	N/A	Yes	Bypass.
Vert Quad Space	2	Pts	Yes	Bypass.
Leader Code	None	N/A	Yes	Separates left from right data in telephone leadering Print. Program should add one to locator being processed insert four periods and continue to print in accordance with the new locator specifications.
End of Frame	None	N/A	Yes	Advance to next page.
Footnote	None	N/A	Yes	Check FN parameter in locator being processed. If locator is not a footnote, bypass the code. If locator is a footnote put out a line of ** before and after footnote. (Footnote(s) end when locator is first encountered that is not specified as a footnote locator.)
EM Space	None	N/A	No	Word separator. Use as word space to break line. If found in middle of line insert two spaces.
EM Dash	None	N/A	No	Word Break. Can end line. Print two hyphens (either if encountered at end or in middle of line).
EN Space	None	N/A	No	Not a word break. Print a word space, but can not end line.
EN Dash	None	N/A	No	Not a word break. Print one hyphen, but can not end line.

<u>Function Code</u>	<u>Number of Characters</u>	<u>Unit</u>	<u>Can it be Proceeded by Precedence Code</u>	<u>Function to be Performed</u>
Leave Blank Space	6	Points	Yes	Advance five lines (or end page if within less than five lines of page end.
Format	4	#	Yes	Bring locator specifications of format (up to 99 locators) into program's parameter area.
Subformat	4	#####	Yes	Print line as follows: ** SUBFORMAT ##### inserted here *** (Leave two lines of space above and below this line -- unless it is last line on the page.) Bypass data until format function code is encountered.
Hyphen	None	N/A	No	Word break can end line. Print hyphen.
Grid Change	1	#	Yes	Underline characters bracketed by a T.F.2 and T.F.1 (to represent italics).
Horizontal Space	2	##	Yes	Print one space if ## is less than 20. Print two spaces if ## is greater than 20.
Conditions Hyphen	None	N/A	No	Bypass
Fraction Function	None	N/A	No	Each fraction is bracketed by fraction function. Print word space in place of leading fraction function bypass the trailing fraction function.
Slash	None	N/A	No	Word break can end line unless fraction is being printed.
Thin Space	None	N/A	No	Bypass
C Table	7	#####A	Yes	Print following line: ** C TABLE ** Leave two spaces above and below line. Bypass all data that follows until table end code is encountered.
Table End	None	N/A	Yes	Commence printing data. (see above)
Carriage Return	None	N/A	No	End line and advance one line.
Spaced Table	None	N/A	Yes	Print data as spaced in input (carriage returns are embedded).

TABLE 2.4.7.2

Function Code	Argument		Preceded by Precedence Code	Function
	No. of Char.	Unit		
Precedence	None	N/A	N/A	Escape Code.
Word Space	None	N/A	No	Word Separator.
Locator	2	#	Yes	Tags the beginning of a copy block. All characters following this tag are to be composed to a specified set of parameters, such as line length, type face point size, etc., until another locator or format is encountered. Somewhat analogous to a format in the IBM photocomp system.
Start Underscore	None	N/A	Yes	Characters that follow are to be underscored.
Stop Underscore	None	N/A	Yes	Terminates Underscore.
End of Paragraph	None	N/A	Yes	Indicates end of paragraph.
Tab	None	N/A	Yes	Separates columns in a table.
Vert Quad Space	2	Pts	Yes	Leading in points to be inserted.
Leader Code	None	N/A	Yes	Separates "left" data from "right" data in telephone leadering.
End of Frame	None	N/A	Yes	Terminates page.
Full Page Graphic	None	N/A	Yes	Skips page (bumps folio number).
Footnote ID	3	Serial #	Yes	Identifies footnote in the footnote data and in reference.
Partial Col.	3	Points	Yes	Leaves a vertical space for graphic.
Full Col.	None	N/A	Yes	Leaves a column of space for insertion of graphic.
Format	4	Format #	Yes	Specifies that new set of parameters for locators are to be used.
Partial Page Graphic	3	Points	Yes	Reserves space for insertion of graphic.
Hyphen	None	N/A	No	Code for hyphen (word break).
Start Index	None	N/A	Yes	Bracket data that is to be indexed.
Stop Index	None	N/A	Yes	Bracket data that is to be indexed.
Start Non Typeset Index	None	N/A	Yes	Bracket data that is to be indexed.
Grid Change	1	Grid # 1-4	Yes	Specifies which grid table to use. Each grid table is broken into four type faces.
Type Face	1	TF # 1-4	Yes	Although 256 code positions are reserved in the grid table for each type face the keyboard layout or "type face" contains 88 characters.
Horizontal Quad	2	Points	Yes	A precedence code followed by two numbers indicates that a quad space of that number of points is to be inserted in the typeset output.

<u>Function Code</u>	<u>Argument</u>		<u>Preceded by Precedence Code</u>	<u>Function</u>
	<u>No. of Char.</u>	<u>Unit</u>		
Em Space	None	N/A	No	Word separator.
Em Dash	None	N/A	No	Word break.
En Space	None	N/A	No	Not a jword break.
En Dash	None	N/A	No	Not a word break.

2.5 Peripheral Devices and Controllers

The minimum requirements for peripheral devices and controllers are as follows.

2.5.1 Card Reader

At least one device having a minimum rated speed of 400 cards per minute. Utilize 12 row, 80 column cards with hole size and location specified in FIPS PUB 13, 96 character ASCII of FIPS PUB 14 Hollerith Punched Card Code.

2.5.2 Card Punch

At least one device having a minimum rated speed of 300 cards per minute. Utilize 12 row, 80 column cards with hole size and location specified in FIPS PUB 13, and Hollerith Punched Card Code specified in FIPS PUB 14.

2.5.3 Line Printers

At least two impact line printers operating at a combined rate of 1800 lines per minute are required. They are to provide 132 columns; they can have inter-changeable print train fonts with one set not containing the lower case print characters; but one set shall contain a minimum of the 96 ASCII characters. Print feed mechanism is to be adjustable from 4 inches to 15 inches. The print is to be 10 characters per inch horizontally and 6 and/or 8 lines per inch vertically. The printer shall print one to five legible copies.

2.5.4 On-Line Storage

The system shall provide sufficient on-line storage to service system-related functions (e.g. temporary files, paging, system routines and tables, etc.) and to accommodate the storage requirements for the first year set forth in Table 2.1. A minimum of two devices shall have removal media.

2.5.5 Magnet Tape Unit

Six 9-track units operating at a minimum of 1600 characters per inch (CPI) are required. These drives or additional drives, if necessary, shall also provide for the reading and writing of one 7-track tape at 556 or 800 CPI NRZI, one 9-track tape at 800 CPI NRZI and one 9-track tape at 1600 CPI PE. All drives are to process 1/2 inch wide, 10-1/2 inch reels of tape. The current tape library contains 1600 CPI PE coded recorded in IBM EBCDIC 9-track code. Speed for the combined drives shall be able to accommodate the copying of the one billion characters from on-line storage in less than one hour.

2.5.6 Operator's Console

Operator console shall consist of a minimum of two CRT's and one hardcopy printer. The printer shall not be the main console and shall be under control of the operator as to message routing.

2.6 Training

The vendor must provide fully qualified personnel and appropriate materials to train Government and Government contracted personnel as indicated in Table 2.6. Training sessions will be held at Government furnished facilities and will consist of classroom-type lectures, workshops, and hands-on experience. Various categories of training which the vendor must provide are described below.

2.6.1 Executive Orientation

The vendor shall conduct a course, not to exceed one-half day, which will acquaint key executives with the general operational features and capabilities of the system.

2.6.2 User Orientation

The vendor shall conduct a course, not to exceed one day, to present an appropriate user overview of the system. Course content should be designed for non-technically oriented users and should describe the system capabilities in general functional terms.

2.6.3 User Technical Training

The vendor shall conduct a course, not to exceed two days, on the detailed technical features and capabilities of the system. Course content should cover interactive system interfaces, terminal operations, communication interfaces, available user software packages, file design techniques, Data Base Management System concept and techniques, transaction processor, etc. This course should not provide specific programming instructions on use of the individual software packages (e.g., COBOL statements, DBMS language, edit commands).

2.6.4 Application Analyst/Programmer Training

The vendor shall conduct a course on each of the major software packages available on the system. This training will prepare the analyst/programmer for making full and effective use of the system and any unique features required in developing, testing, and maintaining application systems. The course will include the following:

- o Instruction on each programming language and related language interfaces (e.g., COBOL, FORTRAN, PL/1).
- o Unique software packages requiring special training for effective use (e.g., DBMS, utilities).
- o Program compilation and testing including test data generation, interactive and batch program development, and use of compiled and test outputs.

2.6.5 System Programmer Training

The contractor shall conduct a course to fully train the system programmers in all aspects of establishing and maintaining the computer system. Course content will include:

- o System generation and implementation of new software releases.
- o File Management.
- o System hierarchy and software components including executive software, transaction processor, and communications software.
- o Performance monitoring including interpretation of error logs.
- o Usage and resource accounting.
- o User oriented software and techniques.
- o Operations support software including start-up, restart, recovery, back-up, fault isolation, and emergency procedures.

2.6.6 Operator Training

The vendor shall conduct a course, including hands-on training, that will assure full understanding of all facets of operating and maintaining all equipment including peripheral and teleprocessing systems.

2.6.7 Continuing Training

The vendor must provide for continuing education on all aspects of the system, as required, for the life of the computer system. Personnel and facilities to support this continuing requirement must be described in the proposal.

2.6.8 Discontinuance of Training

The Government reserves the right to discontinue any or all training services without incurring the cost of the discontinued training services by giving the vendor thirty (30) days notice of its intention to do so.

2.6.9 Review and approval of Training and Schedules

The Government will review all courses and schedules of training prior to holding courses and reserves the right to revise them provided the vendor is notified thirty (30) days prior to commencing training.

Table 2.6 Training Requirements

<u>Type of Training</u>	<u>No. to be Trained</u>	<u>No. of Classes</u>	<u>Completion Schedule</u>
Executive Orientation	30	2	Prior to installation
User Orientation	30 50	3 4	3 months after installation 12 months after installation
User Technical Training	30 50	3 4	3 months after installation 12 months after installation
Application Analyst/ Programmer Training	15 30	5 5	Prior to installation 6 months after installation
System Programmer Training	10 5	2 1	Prior to installation 6 months after installation
Operator Training	20	4	1 month after installation

2.7 Documentation

The vendor shall provide within thirty (30) days after contract award, ten (10) complete sets of literature covering all ADPS equipment and software characteristics and programmer and operator manuals of the proposed computer system. The documentation will include the executive system and use of the command language, data base, file handling, language processors, transaction processor, utilities, communications, unique software, and terminal system. Updates to all delivered hardware/software documentation must be provided for the life of the system. All persons attending the training sessions must be provided a complete set of manuals and pertinent training materials for the course.

2.8 Availability

The proposed system shall be configured so that a failure in a critical component will not cause the system to become inoperable for more than a ten (10) minute period. Critical components of a typical computer system are the following:

- o Central Processing Unit
- o Memory
- o Immediate Access Storage
- o Communications Interfaces

However, regardless of the system architecture, the capability must exist to provide for removal of inoperable or failing components and, after problem analysis and correction, to add them back into the operational system without causing the user community, other than for a short delay, to deviate their processes in any way. In other words, users will not have to be concerned with the status of their process or data when critical components are failing as the system will have the capability to continue the users sessions (batch and interactive), in a normal manner without their involvement (i.e., problem is transparent except for some response, slow down). It is recognized that a small number of individual user jobs could be affected by a failure in a critical component. Removal of failing components must not restrict the functional use of the system and must provide, as a minimum, 50% of the fully configured systems throughput while operating in a degraded mode.

The proposed system shall be fully operational (i.e., not operating in a degraded mode) at least 95% of the scheduled hours for any monthly period. Degraded mode operation shall not exceed 5% of the schedule hours in any monthly period (estimated scheduled hours for an average month is 350).

For each hour of degraded mode operation in excess of 5% of the scheduled hours the contractor agrees to grant a credit to the Government for one-half (1/2) percent of the total monthly charges for this contract.

For each hour of inoperable system time in excess of 5% of the scheduled hours the contractor agrees to grant a credit to the Government for one (1) percent of the total monthly charges for this contract.

These credits to the Government shall be in addition to those stated in the Downtime Credits section. Total credits will not exceed monthly charges under this contract.

The system shall provide a capability for separating required components to establish, without any functional interference with the production system, a basic configuration that can be used for testing new or problem hardware/software packages. There shall also be a capability to add the separated components back into the production system in a manner that does not affect the user community's functional use. A ten (10) minute delay to perform the above operations is not interpreted to be functional interference to system users.

2.9 Support Personnel

The contractor shall provide twenty (20) person-years of system and applications programming support to be located on-site. These personnel must be highly experienced in the particular area to which they're assigned. Areas for which support is required are as follows:

- o System support -- Three personnel on-site for the first year and one person on-site for the second through the fifth year.
- o Application support -- Three personnel on-site for the first year to assist in expediting new application development using the DBMS and other proposed software tools.
- o Conversion support -- Ten person-years on-site during the first year to assist in expediting conversion of current applications to reduce parallel operational time of system being replaced.

3.0 OFFICE AUTOMATION REQUIREMENTS

This section addresses the EOP requirements for a single, integrated system for office automation that encompasses areas such as word processing, electronic mail, correspondence control and maintenance of small data bases. These requirements encompass the following major functional areas:

Office Automation

This capability includes an integrated collection of sophisticated tools to support:

- Electronic Mail
- Document Production
- Document Control
- Personal Information Management

Communications

A capability which supports a network of government-furnished teletype compatible terminals

Operating System & Related Facilities

This capability includes:

- an operating system and related facilities designed to support a large community of non-programming users in an interactive environment
- an end-user oriented file system for both on-line and archival storage
- application development tools such as COBOL and a DBMS

These functional areas along with specific features listed as part of a particular area represent *categories for convenience* in describing EOP office automation requirements. These categories are *not intended to impose any particular configuration, architecture, or packaging on vendor hardware/software*. Therefore a feature described as a requirement of the office automation area (e.g. text storage and retrieval) could be met by a feature provided as part of the DBMS. The important consideration is *not how the feature is packaged, but rather the capability that feature provides*.

3.1 Projected Usage

The projected usage of the office automation facility is as follows:

Table 3.1 Projected Usage

Year	1st	2nd	3rd	4th	5th
Number of Simultaneous Users	50	100	150	200	250
Total Number of Users	200	400	600	800	1000
Number of Mailboxes	200	400	600	800	1000
On-Line Storage (in characters)	.8B	1.6B	2.4B	3.2B	4.0B

3.1.1 Definitions

The following definitions are used throughout this section:

Document Production: The use of data processing technology to expedite the origination, input, review, editing, formatting, and printing of forms, memos, letters, reports and other textual material.

Document Control: The use of data processing technology to expedite the distribution, cataloging, storage, query, and retrieval of materials generated by the document production procedure or acquired from other sources.

Unit: The smallest identifiable or definable string of characters in the system. This may be as large as a single line of text.

Paragraph: A fixed group or block of one or more units.

Document: An organized collection of paragraphs with associated control information.

Text: The language used to make up a unit, paragraph or document.

3.1.2 Single, Integrated System

A *single, integrated system for Office Automation* supporting a basic set of capabilities that provide a foundation for the development of EOP applications is required. Such applications include correspondence management, calendar and diary preparation, and the creation and maintenance of small personal data bases. The system proposed shall be a standard, commercially available system. *The office automation tools (as specified in section 3.2) provided by this system shall be available from government furnished teletype compatible terminals.*

The term *single, integrated system* is intended to connote a software/hardware *environment* within which a user can perform various tasks (such as calendar or diary preparation) by invoking different program modules. The user initially enters the Office Automation system by specifying a single operating system level command. From that point on, the user interacts with the system specified in this section. The *environment* provided by the system for Office Automation is required to have at least the following characteristics:

o Consistency

The user interface across various program modules shall be consistent. Commands shall be specified in the same fashion and similar actions shall produce similar results. For example, if the text editor user commands are specified via a verb, noun syntax (e.g., "Insert Word"), then the user command language interface in all program modules shall utilize a verb, noun syntax.

User level commands to enter a program module, to exit a program module, and to request on-line help and similar facilities shall be identical in all program modules.

o Adaptability

A "user profile" is required for each user. A profile structures the environment for that user. The user shall be able to modify the options specified in his or her own profile.

As a minimum, the profile shall specify:

- The manner in which command recognition is triggered and the amount and kind of feedback received by the user.
- The program modules available to a user. If access to a program module (e.g., the text editor) is not restricted, the user shall be able to add or delete that module and its associated commands without operator intervention (i.e., no special "system" privileges shall be required).

A separate Command Language Interpreter (or equivalent) which invokes program modules on behalf of the user via a standardized interface is required. This shall provide capabilities to:

- use existing program modules in developing new applications (without changes to code contained within the module),
- modify or replace existing program modules without modification to the user's command language interface, and
- modify the user's command language interface without modification to existing program modules.

o Easy-to-Use

Since the environment is consistent, learning a new application is akin to expanding one's vocabulary and not learning a new language.

The user can invoke on-line help, documentation, and tutorials. The commands used to *invoke* such help shall be identical throughout all program modules (e.g., the user types the word "HELP" to *invoke* on-line help and then indicates the subject upon which help is desired. The subject may vary from program module to program module but on-line help is always *invoked* by typing "HELP".).

o Facilities for Applications Development

EOP applications development will be done both by the end user and by computer systems analysts at the user's request.

In order to assist the user in performing repetitive tasks, a facility for defining and executing user-written macros is required. By this we mean that the user can type in a series of user level commands as ordinary text, save them, and then later cause them to be executed as if they were being entered at a terminal.

The facilities for applications development shall include at least the following:

- Software development tools such as compilers, on-line debugging aids, and DBMS's.
- Software debugging tools such as software instrumentation packages.
- Facilities to create and maintain program libraries.

3.2 Office Automation Tools

3.2.1 Device Support

The office automation system must be capable of accepting input from a variety of devices including:

- o teletype compatible typewriter-like and CRT terminal devices
- o Batch input devices, such as magnetic tape and card devices.

The office automation system must support a variety of output devices including:

- o teletype compatible typewriter-like and CRT terminal devices
- o Low- and high-speed printer devices including upper/lower case capabilities.
- o Magnetic tape and disk devices.

A facility to interface with stand-alone word processing systems such that files (i.e., ASCII text streams without formatting codes) prepared on such systems can be transmitted to the Office Automation system is desirable. This would require a convenient facility for preparation of device handlers appropriate for each stand-alone word processing system.

3.2.2 Office Automation System Access

Each authorized user of the Office Automation system shall be assigned a unique user identifier. This identifier shall be used to control access to the Office Automation system.

3.2.3 Office Automation System Monitoring

The capability of designating an operator as system administrator is required. This designation shall not limit the system administrator to any specific terminal. The primary function of the system administrator will be to create and maintain a list of authorized users.

3.2.4 Archive

The capability to permit documents to be transferred to magnetic tape is required. The capability shall also exist to retrieve the archived document back into the system. Information regarding archived documents, including name, date & time archived, and any other identifying characteristics, shall be available to the operator on demand.

3.2.5 Document Characteristics

The system shall permit documents with the following characteristics:

- o up to 1 million characters per document

The user shall be able to associate with each document the identifiers of users who are authorized to access the document. The system shall permit only authorized users to access a document.

The system shall maintain the following information for each document:

- o date & time of last update
- o user identifier of person who last updated the document

In order to facilitate the review and editing process, it is desirable that the system maintain the following information for each paragraph within the document:

- o date & time of last edit*
- o user identifier of person who last edited the paragraph*

The structure of a document shall be such that data stored therein can be identified, retrieved, and operated on at the unit, paragraph, and document level. Within a document, the system shall support levels of structure above the paragraph level (e.g., the ability to group paragraphs into "chapters" and then manipulate a "chapter" as a single entity) in order to facilitate dis-assembly of documents into sub-documents, independent operations (e.g., editing, printing), and subsequent reassembly.

3.2.6 Document Production

3.2.6.1 Text Editing

General

The text editing capability described herein will be used to process unformatted textual data for online editing. Key characteristics of this capability include:

- o Computer control and processing,
- o Direct keying of input,
- o Multi-file editing, and
- o Multi-user editing of the same file.

The software proposed shall make use of remote and local teletype compatible typewriter-like and CRT terminal devices for data entry, editing, and formatting. It shall provide output capabilities to teletype compatible typewriter-like and CRT terminal devices, printer devices, magnetic tape, and disk devices.

Because of the varied skill level of anticipated users and operators, the command language and structure shall be *simplistic and easy to use* (i.e., suitable for use by non-computer oriented terminal operators without an extensive learning or training period).

The text editor shall allow character string searches and substitution, text insertion, deletion, movement, modification, and printing capabilities.

The system is required to automatically maintain a copy of any document currently being modified but not yet updated. This copy shall be the contents of the document as of the last update.

Text Entry and Edit

The system shall provide for one-time keying of text. Rekeying shall be necessary only to those portions of text that are changed. The system shall include at least the following entry and editing capabilities:

o Free-form entry

The system shall define default left and right margins and entry of text shall be free style without concern for margin bell. Controls within the system shall allow an operator to specify left and right margins for all paragraphs within the document and for individual paragraphs as selected by the operator.

o Search

The capability shall exist for the user to search through a document for a specified character string. When found, the text at that location shall be displayed. If the string is not found, a message to that effect shall be displayed. The capability to list the location of all occurrences of a specified string is required. *The capability to specify that upper and lower case shall be ignored when searching for a specified character string is desirable.*

- o Replace

The ability to replace or change the occurrences of an old character string with a new defined character string is required. The capability to replace all occurrences of the old character string or selected occurrences is required. The system shall allow the user to verify that the proposed replacement is correct.

- o Add

The ability to add characters, words, lines, paragraphs, and other delineated character strings to an existing document is required.

- o Delete

The ability to delete characters, words, lines, paragraphs, and other delineated character strings is required. The system shall allow the user to verify that the proposed deletion is correct. Text subsequent to and on subsequent lines shall be automatically closed up where a deletion has been made.

- o Move Text

The ability to move and/or copy a defined block of text from one location to another is required. "Move" means that the defined block is deleted from its old location and inserted at the new. A "copy" operation shall not delete text from the original location. The old and new locations may be within the same document or within two different documents.

- o Full Word Wrap

Words displayed on the terminal during editing, and as a result of being called up from a document to be edited shall never be broken by the system at the end of a line.

The system shall provide a simplistic command language, which is suitable for use by non-computer oriented terminal operators. The language shall be simple, so that an extensive learning or training period is not required. The following command functions are required:

- o Save/Retrieve

The ability to store text, to allow it to be given a discrete identification for recall and subsequent use.

- o Purge

The ability to purge a document from the system by document name and optionally by password if one is associated with that document.

- o Replace

The capability to replace a document with a new, updated, or modified version.

- o Lock

The capability to lock out other operators while a document is being updated and to unlock that document when the update is complete.

- o Spelling Checker

The capability to verify the spelling of words in a document. *A user expandable spelling dictionary is desirable.*

Text Select/Merge Capability

The ability to define arbitrary strings of characters, to save them permanently, and to automatically select and insert them in a document is required. One use of this feature will be for mass mailings where, for example, names and addresses are selected from an existing mailing list and inserted in fixed body of text.

3.2.6.2 Review

The system must support facilities for on-line review. The capability (as specified in Section 3.2.7) to distribute documents or portions of documents on-line for review and comment is required.

3.2.6.3 Formatting

The proposed system shall provide mechanisms, such as control codes which may be embedded within the text, for the purpose of defining and controlling text format. These control functions shall provide automatic pagination and shall include:

- o Automatic Page Numbering

A facility shall exist within the system to provide automatic page numbering. User options shall exist to allow starting page number and the placement of page numbers (i.e., within headings, footings, or the body of the text) to be specified.

- o Headers and Footers

A facility to permit information to be printed at the top or bottom of each page of a document, and optionally centered.

- o Text Grouping

A capability to prevent a block of text in a document from being split and printed on two pages.

- o Spacing

A facility to allow an operator to specify the number of blank lines to be left (e.g., for separating sections of text or to leave space for the insertion of charts or illustrations) shall be available.

- o Horizontal Justification

Right line justification and the option to alternate between right justification and normal ragged right margins.

- o Tabbing

The editor shall support the definition and display of at least 15 tab positions in the text.

- o Hyphenation

A user expandable hyphenation dictionary is desirable.

- o Superscripts

- o Subscripts

- o Overstriking (e.g., underlines, bold)

- o Multiple columns

- o Multiple fonts in multiple point sizes

- o Line Leading

- o Paragraph Leading

3.2.6.4 Printing and Photocomposition

3.2.6.4.1 Local Printing

It is required that the system provide automated mechanisms (e.g., "proof marks" along the right hand margin) which can be used to identify lines which have been edited in a document.

The proposed system shall provide mechanisms to print/display all or portions of a formatted document at teletype compatible typewriter-like and CRT terminal devices, and at centrally located printers that are shared among many users.

The system shall ignore any control codes which are not applicable to the designated output device.

3.2.6.4.2 Photocomposition

Introduction

Documents which are to be typeset will be sent to the Government Printing Office (GPO) for processing through their automated photocomposition system. Since the necessary control codes are entered into the document either manually or by a user-written program, no composition subsystem is required to be resident in the Office Automation system.

The Office Automation system, however, must have the capability of recording a data file on 9 track unlabelled magnetic tape, 1200' or 2400' X 1/2" reel at a density of 800 or 1600 BPI. The data will be unblocked and consist of fixed length records containing 100 to 3,000 characters. The last record will be padded with blanks. These records will not contain a block or record count field.

Structure of Full Text Data Base (FTDB)

The data in a document is broken into data elements (fields). Each data element of like kind is assigned a given locator number within a specified format number. All data following a format/locator tag code until encountering another locator tag is considered to be included in that data element. A data element may vary from a few characters to several thousand characters in length. Although the locator and format codes are the primary function codes in a FTDB, several other function codes are also used. The list of control codes and their given function is given in Table 3.2.6.4.2

Composition System for Line Printer

A Line Printer Composition Program and a Format Parameter Maintenance Program are desirable. These programs shall have the following features.

The Line Printer Composition Program will accept as input the structured full text data base and a parameter file containing the composition specifications for all formats contained in the structured full text data base. The program will produce a printout of the textual data contained in the data file formatted in accordance with the specifications stored in the parameter file.

The parameter maintenance will allow entry of new formats into the system. It will also provide for the modification of formats resident in the system. The system input to the Parameter Maintenance Program shall be from punched cards, magnetic tape, or terminal. The parameter "cards" shall contain the parameter values specified in the following paragraphs.

The parameter file is made up of formats. Each format contains 99 locators. Each locator contains the print specifications for the data that follows that particular locator on input.

Each locator "card" will contain the following fields which define a particular print specification:

<u>Field</u>	<u>Value Limits</u>	<u>Remarks</u>
Leading	0-4	Number of blank lines between print lines.
Bottom Leading	0-6	Minimum number of blank lines below the data element tagged on input by this locator.
Top Leading	0-6	Minimum number of blank lines above the data element tagged on input by this locator. <u>Note:</u> Leading between locators equals the greatest of the top leading of present locator or bottom of previous locator.
Line Length	1-132	Number of characters in line (measured from left margin)
Primary Indent	0-50	Number of spaces from left the first line of locator is indented.
Line Numbers	0-1	0 - No 1 - Yes
Secondary Indent	0-50	Number of spaces from left second and all succeeding lines of locator are indented.
Paragraph Lead	0-4	Number of lines to skip after encountering end of paragraph.
Type face	1-2	Type face 1 is roman. Type face 2 is italic - underline.
Line Type	1-3	Line Type 1 flush left Line Type 2 flush right Line Type 3 center.
Footnote	0-1	0 - locator is not a footnote 1 - locator is footnote

Input: The input file will be in full text data base (FTDB) structure. The structure of each function code and the operation that this program is to perform upon encountering it is given in Table 3.2.6.4.1.

The bit configuration assigned to the character and function codes can vary from file to file. The structure, however, will always be the same so that a translation table must be included in the program. The translate tables may be stored on magnetic tape or disk. The system should permit up to ten tables to be resident in the system. It shall be possible to key a new table or modify one of the present tables from a terminal or computer console. There shall be 256 entries in each table and they will be keyed in the following form: XX : yy

Where *XX* is the input code of the character and *yy* is the internal system code for the same character. The typeset character compliment of each job to be processed may exceed the characters available on the "print chain" of the printer. A character for which there is no corresponding character on the printer can be translated to a selected alternate by making the necessary modification to the translate table described above.

Output: The printout produced by the program will be single column text (and "spaced" tabular). Page size will be controlled by printer tapes, etc. No "widow" logic will be required. Lines will be formatted as described in the section on input. Characters printed will be a function of the "print chain" mounted on the printer and the translate table defined above.

TABLE 3.2.6.4.1

<u>Function Code</u>	<u>Number of Characters</u>	<u>Unit</u>	<u>Can it be Proceeded by Precedence Code</u>	<u>Function to be Performed</u>
Precedence	None	N/A	N/A	Escape Code.
Word Space	None	N/A	No	Word Break -- used in determining line ending.
Locator	2	#	Yes	Tags start of data element. Composition specifications are stored in parameter file for the locator number called out. There can be 99 locators in any given format. The locator called out remains in effect until another locator, a format subformat leader code or end of file is encountered.
End of Paragraph	None	N/A	Yes	Indicates end of paragraph. Line should be ended and following line indented to the primary indent spec for locator in effect. Between paragraph leading is inserted before printing the next line.
Tab	None	N/A	Yes	Bypass.
Vert Quad Space	2	Pts	Yes	Bypass.
Leader Code	None	N/A	Yes	Separates left from right data in telephone leadering Print Program should add one to locator being processed insert four periods and continue to print in accordance with the new locator specifications.
End of Frame	None	N/A	Yes	Advance to next page.
Footnote	None	N/A	Yes	Check FN parameter in locator being processed. If locator is not a footnote, bypass the code. If locator is a footnote put out a line of "" before and after footnote. (Footnote(s) end when locator is first encountered that is not specified as a footnote locator.)
EM Space	None	N/A	No	Word separator. Use as word space to break line. If found in middle of line insert two spaces.
EM Dash	None	N/A	No	Word Break. Can end line. Print two hyphens (either if encountered at end or in middle of line).
EN Space	None	N/A	No	Not a word break. Print a word space, but can not end line.
EN Dash	None	N/A	No	Not a word break. Print one hyphen, but can not end line.

<u>Function Code</u>	<u>Number of Characters</u>	<u>Unit</u>	<u>Can it be Proceeded by Precedence Code</u>	<u>Function to be Performed</u>
Leave Blank Space	6	Points	Yes	Advance five lines (or end page if within less than five lines of page end.
Format	4	#	Yes	Bring locator specifications of format (up to 99 locators) into program's parameter area.
Subformat	4	####	Yes	Print line as follows: ** SUBFORMAT #### inserted here *** (Leave two lines of space above and below this line -- unless it is last line on the page.) Bypass data until format function code is encountered.
Hyphen	None	N/A	No	Word break can end line. Print hyphen.
Grid Change	1	#	Yes	Underline characters bracketed by a T.F.2 and T.F.1 (to represent italics).
Horizontal Space	2	##	Yes	Print one space if ## is less than 20. Print two spaces if ## is greater than 20.
Conditions Hyphen	None	N/A	No	Bypass
Fraction Function	None	N/A	No	Each fraction is bracketed by fraction function. Print word space in place of leading fraction function bypass the trailing fraction function.
Slash	None	N/A	No	Word break can end line unless fraction is being printed.
Thin Space	None	N/A	No	Bypass
C Table	7	#####A	Yes	Print following line: ** C TABLE ** Leave two spaces above and below line. Bypass all data that follows until table end code is encountered.
Table End	None	N/A	Yes	Commence printing data. (see above)
Carriage Return	None	N/A	No	End line and advance one line.
Spaced Table	None	N/A	Yes	Print data as spaced in input (carriage returns are embedded).

TABLE 3.2.6.4.2

Function Code	Argument		Preceded by Precedence Code	Function
	No. of Char.	Unit		
Precedence	None	N/A	N/A	Escape Code.
Word Space	None	N/A	No	Word Separator.
Locator	2	#	Yes	Tags the beginning of a copy block. All characters following this tag are to be composed to a specified set of parameters, such as line length, type face point size, etc., until another locator or format is encountered. Somewhat analogous to a format in the IBM photocomp system.
Start Underscore	None	N/A	Yes	Characters that follow are to be underscored.
Stop Underscore	None	N/A	Yes	Terminates Underscore.
End of Paragraph	None	N/A	Yes	Indicates end of paragraph.
Tab	None	N/A	Yes	Separates columns in a table.
Vert Quad Space	2	Pts	Yes	Leading in points to be inserted.
Leader Code	None	N/A	Yes	Separates "left" data from "right" data in telephone leadering.
End of Frame	None	N/A	Yes	Terminates page.
Full Page Graphic	None	N/A	Yes	Skips page (bumps folio number).
Footnote ID	3	Serial #	Yes	Identifies footnote in the footnote data and in reference.
Partial Col.	3	Points	Yes	Leaves a vertical space for graphic.
Full Col.	None	N/A	Yes	Leaves a column of space for insertion of graphic.
Format	4	Format #	Yes	Specifies that new set of parameters for locators are to be used.
Partial Page Graphic	3	Points	Yes	Reserves space for insertion of graphic.
Hyphen	None	N/A	No	Code for hyphen (word break).
Start Index	None	N/A	Yes	Bracket data that is to be indexed.
Stop Index	None	N/A	Yes	Bracket data that is to be indexed.
Start Non Typeset Index	None	N/A	Yes	Bracket data that is to be indexed.
Grid Change	1	Grid # 1-4	Yes	Specifies which grid table to use. Each grid table is broken into four type faces.
Type Face	1	TF # 1-4	Yes	Although 256 code positions are reserved in the grid table for each type face the keyboard layout or "type face" contains 88 characters.
Horizontal Quad	2	Points	Yes	A precedence code followed by two numbers indicates that a quad space of that number of points is to be inserted in the typeset output.

<u>Function Code</u>	<u>Argument</u>		<u>Preceded by Precedence Code</u>	<u>Function</u> Word separator.
	<u>No. of Char.</u>	<u>Unit</u>		
Em Space	None	N/A	No	Word separator.
Em Dash	None	N/A	No	Word break.
En Space	None	N/A	No	Not a jword break.
En Dash	None	N/A	No	Not a word break.

3.2.7 Document Control

General

Mechanisms to record the progress and intermediate forms of any document at any point in the document control procedure are required. Mechanisms to facilitate coordination among participants, who may not be co-located, are required. Interfaces to capture documents produced by other systems are required.

Distribute

The system must date and time stamp the distributed documents. As a part of the process which initiates distribution, the user must be able to specify the following:

- o Subject
- o Action Code
- o A short message (a minimum of 400 characters) to be associated with the distribution
- o Distribution to individuals or to pre-defined distribution lists
- o Type of distribution:

Public - a public record of the distribution is maintained and those not on the distribution list may view the document

Private - no public record of the distribution is maintained. Only those on the distribution list may view the document.

An on-line directory that may be queried by a user to determine valid distribution addresses is required. As a minimum, the following information must be available for each individual user:

- o On-line address to which documents will be delivered, full name, U.S. Postal address, telephone number, and organizational affiliation.
- o Preferred distribution media (e.g., hardcopy, micrographic, electronic)

The system shall utilize the information in this on-line directory to perform the distribution function.

Catalog

The system must automatically catalog all materials distributed in a general catalog and in special interest subcatalogs on request. It is required that any catalog information be available to the document production facilities without applying the data entry step required for original materials.

Store

The ability to store cataloged material on centrally available storage (e.g., disks) or on archival storage (e.g., magnetic tapes) is required.

Query

Mechanisms to query documents and information about documents are required. The ability to search the catalogs by author, title word, number, or user-assigned key words is required.

Retrieve

Facilities to retrieve all cataloged material are required. Any material retrieved shall be made available to the document production facilities without applying the data entry step used for original materials.

3.2.8 Electronic Mail

Within the context of these specifications, the term *electronic mail* is intended to connote a computer-based message system with the following characteristics:

- o It operates asynchronously in the sense that the sender and recipient(s) need not interact with the system at the same time.
- o It provides the text handling capabilities required to compose, distribute, read, and store mail.
- o It provides an interactive user interface that can be tailored to accommodate the preferences and skill level of individual users. That is, the "user profile" required for each user shall support the selection of options such as:
 - o upper case only vs upper/lower case
 - o "paging" (e.g., print/display 24 lines at a time) vs continuous output
 - o standard distribution lists
 - o modifying formats used for input and displaying of messages

and so on. The user shall be able to modify the options specified in the "profile".

3.2.8.1 Preparing Mail

The user shall be able to prepare mail using the text editor specified in section 3.2.6.1 and also by using a simpler editor that supports at least the following:

- o inputting of messages of at least 2000 characters
- o backspace a character
- o backspace a word
- o delete a line

3.2.8.2 Format of the Mail

The following system defined fields are required:

- o From
- o To
- o Carbon Copy
- o Subject
- o Text

The following fields are desirable:

- o File Carbon Copy*
- o Blind Carbon Copy*
- o Keywords*

3.2.8.3 Sending Mail

As a default, the system shall prompt the user to enter material in the system defined fields. The user shall be able to enter previously prepared material (i.e., material prepared with the office automation tools specified above) in any of these fields.

The user shall be able to specify distribution either to individual mailboxes or to pre-defined groups of mailboxes (i.e., distribution lists). The user shall be able to define distribution lists at any time and have them immediately available for use. No special system privileges shall be required.

The user shall be able to reply to received mail with a single command. As a default, the system shall use the message being replied and fill in the following information:

- o Subject
- o Distribution (the default shall be all recipients of the original message)

When the user indicates that a message is to be distributed, such distribution shall occur immediately unless the user specifies deferred delivery. The system shall append the following information to the distributed messages:

- o Identity of Sender
- o Size of message (e.g., number of characters)
- o Date & Time sent

3.2.8.4 Receiving Mail

The system shall display (as a default) the following information for unread mail:

- o Identity of Sender
- o Subject
- o Size of message (e.g., number of characters)
- o Date & Time sent

The capability to forward a received message is required.

3.2.8.5 Permanent, Stored Searchable Record

A permanent, searchable stored record of received mail from which the user can add and delete messages shall be maintained. The system shall support searches on the following items:

- o Identity of Sender
- o Subject
- o Date

The capability to forward a stored message with user added comments is required.

3.2.8.6 Filing Mail

The mail system shall provide a facility for the user to create and maintain on-line "file folders" (e.g., separate computer files) into which he can move and/or copy messages. The user shall be able to treat these "file folders" in the same manner as the stored record described in section 3.2.8.5. The user must be able to perform all of these file-folder maintenance functions within the electronic mail system, i.e., without having to go to the command language or some other subsystem.

3.2.8.7 Status of Mail

A capability by which the sender can determine whether a message has been delivered to the recipient's mailbox is required.

The user shall be notified of pending mail when the electronic mail system is first accessed and, at the user's option, at any time during the interactive session when new mail is received.

3.3 Communications Functions

3.3.1 General

The primary function of the communications interface is to provide a data path between the terminal user and the services available via the office automation facility of the IPS.

The terminal user will communicate with the system via interactive asynchronous ASCII terminals. These terminals, along with modems and lines, will be furnished by the Government.

3.3.2 Line Control

The vendor shall initially provide a minimum 75 asynchronous ports and associated facilities as required to support the following features

- o Half and full duplex mode
- o Parity checking and generation for odd, even, and no parity
- o ASCII communications protocol
- o The 128 ASCII character code set
- o Character size of 7 and 8 bits
- o Speeds of 110, 300, 1200, 2400, 4800, and 9600 bps
- o Switched (dial-up) and non-switched lines

All interfaces such as modem terminals and line drivers are to be EIA RS-232C.

The system must provide at least

- o 15 ports for 300 bps lines
- o 20 ports for 1200 bps lines
- o 40 ports for 4800 bps lines

3.3.3 Desirable Features

3.3.3.1 CCITT X.25 Hardware and Software

At least one I/O interface which meets the CCITT X.25 specifications

3.3.3.2 Terminal Protocols

IBM 2741 and compatible units.

IBM 2780 and compatible units.

Automatic speed detection/selection for the following speeds: 150, 300, 1200, 4800, and 9600 bps.

3.4 Operating System and Related Functions

An executive (i.e., operating system, monitor, supervisory control program, etc.) shall be provided to allocate and control all system resources, both hardware and software, specified herein.

3.4.1 User Interface

3.4.1.1 General

The executive shall provide the interface between the user and the system. This executive shall include a command language to provide:

- o Access to the system.
- o Access to all of the utilities required to build, debug, modify, maintain, and control the execution of user programs.
- o Access to and control over subsystems and libraries.
- o Initiation of batch operations.
- o Access to all of the utilities required to create, attach, update, rename, detach, save, purge, copy, and archive files.
- o Queries to obtain information about the status of the system or a particular job being processed by the system.

The vendor shall identify and describe the individual commands which collectively comprise the command repertoire.

3.4.1.2 Access Control Security Features

Capabilities to prevent unauthorized users from obtaining services from the system shall be provided. These capabilities shall include:

- o User identification/verification -- Procedures (e.g., passwords) shall be provided for identifying valid users.
- o Audit logs -- User identity, hardware and software accessed, and other relevant information shall be recorded. Attempts to gain unauthorized access to system resources must be logged.
- o System facilities -- Access control to system hardware and software resources shall be provided by a capability based on the user identification and verification capabilities. The capability to control access for an individual user and for groups of users is required.
- o Access Control Reporting -- A set of standard reports (which may include console messages) from the system tailored to providing and highlighting information pertinent to managing and maintaining secure access to the system facilities is required.

3.4.1.3 Command Language Interpreter

The command language interpreter shall be able to accept commands from a terminal, a user's program, and from a file.

3.4.1.4 Command Language

The commands shall be English-like statements consisting of words, mnemonics, or abbreviations which are descriptive of the facility being activated. The language shall provide special features to assist the novice users. Such features shall include:

- o Cues to indicate when the system is waiting for input.
- o Facilities to assist the user in obtaining detailed explanation of commands.
- o Editing facilities which permit the user to correct errors in his input.

While the language shall be oriented toward the novice user, it shall nonetheless permit the more experienced users to utilize their familiarity of the system to expedite their work. Features provided shall include:

- o Option to abbreviate commands.
- o Facilities to suppress cues and informative messages.

3.4.2 Programming Language Translators

3.4.2.1 Compilers

FIPS PUB 21-1 Federal Standard COBOL shall be provided. The proposed software shall permit the terminal user to submit programs for compilation and execution, with results returned to the terminal user.

3.4.2.2 Interpreters or Incremental Compilers

All of these translators shall provide error diagnostics and shall provide for line by line execution of programs. *The following are desirable:*

- o *BASIC*
- o *APL*.

3.4.3 Sort

A sort facility shall be provided that arranges the records of one or more files according to a user specified sequence. The user shall be able to designate sort keys (in either ascending or descending order) on which the records are sorted. The system shall accommodate at least 30 sort keys each of which is up to 35 characters in length.

3.4.4 Data Base Management

A Data Base Management System (DBMS) shall be provided which contains the following features.

3.4.4.1 Report Writer and On-Line Query/Report

An end-user English oriented report writer that provides automatic headings, footings, page numbering, sorting, break totals, and post selection processing capability (including limited computational processing) shall be provided. This report writer shall have boolean and arithmetic operators which allow qualification on any data element in the data base.

It is desirable that the report writer allow reading and writing of non-DBMS files.

An English-oriented on-line query/report feature that provides Boolean and arithmetic operators, sorting, break totalling, and the ability to qualify on any data element shall be provided. This query/report feature shall notify the user of the number of records retrieved and allow further qualifying of that set.

The capability to retrieve data element values from more than one related data base file in the same query and to use these elements in a single report shall be provided.

The report writer and on-line query/report feature functions shall provide features that facilitate use by the non-programming user who has received only basic instruction. The report writer and the on-line query/report feature shall have the similar syntax (e.g., same verbs, position of verbs, etc.).

3.4.4.2 On-Line Update

An on-line update feature to add, change, and delete data element values and records using the vendor supplied language shall be provided. It will provide for simple editing of alphabetic and numeric data elements.

The editing function shall include date conversions and formatting. *It is desirable that the editing function also include legal values.*

The user shall be able to perform delete and change functions on groups of records by qualifying those records based on some data element value (e.g., delete all records where the data element STATE CODE is equal to "CA").

3.4.4.3 Macro Definition

The capability to define a set of queries or reports as DBMS Macro commands which can be invoked in the on-line query/report, on-line update, and report writing functions shall be provided.

3.4.4.4 Data Manipulation Language

A Data Manipulation Language (DML) with an interface to COBOL shall be provided.

The DML shall provide the following capabilities:

- o Data base maintenance (e.g., add, change, and delete functions on records and data element values).
- o Data retrieval activities (e.g., records and data element values).
- o Direct support of retrieval based on boolean or arithmetic operators against any data element in the data base.
- o End-user oriented diagnostic messages.
- o Direct support of sorted retrieval of records on more than one data element (e.g., sort records qualified in descending order by data element 1, data element 2, and data element 3..... major to minor).
- o Provides information on the number of records that qualify in a particular retrieval operation with this information directly available to the user program for use in constructing various operations.

3.4.4.5 Data Independence

The DBMS shall support Data Independence by providing the ability to make changes to a data base description (e.g., add a data element) without impact on existing programs. The capability to add data elements to an existing data base shall be provided.

It is desirable that other data description changes (e.g. changing the length of a data element, and deleting data elements) be made without impacting existing programs which reference that data base unless an attribute upon which those programs depend has been changed.

A vendor supplied utility for reloading the data base, if reloading is necessary for adding, changing, or deleting data elements, shall be provided.

3.4.4.6 Data Description Language

An easy to use Data Description Language for creation of data base files shall be provided. The ability to specify legal values, edit criteria, table values, and date conversions shall be provided.

The Data Description Language shall provide the following capabilities:

- o Support of a variety of data element formats (e.g., alpha, numeric, date conversion, etc.)
- o Support of on-line data base definition via an end-user oriented interactive dialogue.
- o Re-define a data element into sub-data elements which can be queried separately.
- o multiple record sizes and types

It is desirable that the Data Description Language provide the following capabilities:

- o Support of a variety of data element value storage criteria (e.g., Null value suppression, fixed length, variable length, encryption, etc.)*
- o Support of a variety of data element constructions (e.g., multivalued, periodic groupings, sub division of a data element into one or more data elements requiring a value to be entered only for the data element being sub divided, etc.)*

3.4.4.7 Data Loading

A data file loading capability (i.e., high volume from formatted user files) shall be provided. The ability to specify simple edit criteria (e.g., alpha and numeric) at the data element level shall be provided. The capability to convert existing user files to DBMS data base files without developing user conversion programs shall be provided.

3.4.4.8 Data Directory

The capability to obtain a directory listing of data element names and attributes (e.g., numeric, alphabetic, length, and name) for DBMS files shall be provided.

3.4.4.9 Data Base Administration

The capability to obtain data base utilization reporting for mass storage utilization and organization of DBMS files shall be provided.

It is desirable that these reports indicate, for each data base file, information such as the number of records, mass storage utilized, date of last update, date of creation, and other information relevant to the management of data base files.

3.4.4.10 Data Base Security

Security protection of the data base at the file level and the data element level shall be provided.

The capability to obtain reports that show security assignments at the file level (e.g., read/update authorities for specific data base files) and the data element level shall be provided.

It is desirable that the capability to obtain security reports showing attempts at unauthorized access of data base files at the file and element level be provided.

3.4.4.11 Data Base Integrity

Backup facilities for preserving data base integrity shall be provided.

3.4.4.12 Data Base Design

The DBMS shall provide flexibility in design alternatives by:

- o supporting retrieval on keys.
- o supporting retrieval based on qualifying any data element in the data base.
- o supporting concurrent multi-user accessing, updating, and reporting from a given DBMS file or files.
- o allowing for growth in the number of files, number of records, and number of data elements per file.
- o supporting cross-file relationships to reduce data redundancy and to improve user accessibility.
- o facilitating enhancements, changes, and modifications to the data base at both the file and data element level.

3.4.4.13 Text Storage and Retrieval

The system shall provide a facility to search and retrieve documents in interactive dialog between the user and the system. This capability shall include:

- o Keyed Searches - assignment of words, word pairs, or phrases as index terms or keys to textual data
- o Proximity Searching - rapid searching of words in text. Users shall be able to specify word distance conditions (e.g., the string "John" immediately followed by the string "Smith" or the string "John" followed by any intervening string followed by "Smith")
- o Capability for matching of keys or index terms against a thesaurus for indexing control.

Queries shall be storable so as to minimize the necessity to rekey recurring query procedures.

3.4.5 File System

A file system shall be provided for storage and retrieval of data on external I/O devices. The system shall provide a means for the users to assemble this data into one or more files and to save (make system resident) these files for subsequent use.

The capability to have different versions of the same file is required.

Access to a file shall be by the symbolic name assigned by the user at the time the file was created. The capability to reference a group of files by a single user-assigned name is required.

The file system shall include facilities for access protection, space management, file structuring, and protection against system and operational mishaps. .

3.4.5.1 Access Protection

The file system shall provide an effective access protection scheme to preserve the integrity of the files against unauthorized users and uses. The protection privileges shall include:

- o Status (ability to obtain information respecting the existence, usage, and activity of a file).
- o Read.
- o Write.
- o Append.
- o Rename
- o Purge
- o Execute

The access scheme shall allow a file to be shared concurrently among any number of authorized users, but shall protect against conflicts which may result from readers and writers of that file.

3.4.5.2 Space Management

The file system shall provide software to automatically monitor and manage the storage space within which files and file directories reside. This software shall:

- o Dynamically allocate file and directory space on a demand basis.
- o Dynamically reclaim and reallocate previously used file and directory space no longer in use.
- o Dynamically enforce installation and user specified limitations respecting space allocation and/or file size for individuals or groups of users.

The file allocation unit size shall be adjustable by software parameters. The space management software shall also provide a mechanism for automatically archiving files based on installation and/or user specified file usage parameters.

3.4.5.3 File Structures

The file system shall include software to allow the programming user, at his option, to specify the logical organization of his file. This software shall support, as a minimum requirement, sequential, index-sequential, and random organizations. The choice of a logical organization shall in no way be constrained by system restrictions respecting the particular physical organization being utilized.

3.4.5.4 File Utilities

The file manipulative commands and utilities provided shall perform and control the following functions:

- o file creation
- o attaching (assigning) files to user jobs
- o updating (changing existing records and/or appending new records) files
- o renaming files
- o detaching (releasing) files from user jobs
- o saving files
- o purging files
- o copying files
- o archiving files

3.4.5.5 Protection against System and Operational Failures

Software utilities shall be provided to dump and restore file system information as required to protect against accidental destruction in the event of a system failure or operational mishap. These utilities shall function in a normal systems operation environment and shall provide the following features:

- o Generate backup copies of newly created or modified files at installation specified time schedules. This schedule shall be adjustable via software parameter(s).
- o Identify the specific files which may have been affected by a system failure or operational mishap.
- o Selectively restore the entire file system or specified individual files are required to recover from a system failure or operational mishap.

3.4.6 Resource Accounting

Accounting software shall be provided which dynamically collects, maintains, and outputs accurate information required to identify users of the system along with a complete accounting of all the resources (CPU, central memory, I/O) utilized by each individual user.

The accounting software shall provide the appropriate interfaces and linkages to conveniently permit an installation supplied algorithm to be utilized in the computation of charges. This algorithm will be based upon the resources utilized by the job.

The accounting software shall perform the following functions.

3.4.6.1 Controlling

The user's access to the system shall be strictly controlled by software which relates user-ID's (a character alphanumeric identifier) to account numbers and funds available to each account. Only those users who supply an account number (for a solvent account) and a valid user-ID (an ID validated for use with that account) are to be permitted access to the system.

3.4.6.2 Charging

The charges accrued by each user job shall be computed immediately upon completion of that job.

3.4.6.3 Recording

Job charges, along with the resource utilization information upon which the charges are based, shall be dynamically recorded in an "accounts file" maintained by the system for subsequent audit and analysis by computer center staff. The audit and analysis functions shall be performed by application programs. An access protection scheme shall be provided to preserve integrity of the "accounts file" against unauthorized users and uses. Software shall also be provided for automatically creating backup copies of this file at installation specified intervals to protect against accidental destruction in the event of a system failure or operational mishap.

3.4.6.4 Reporting

Job charges, along with the resource utilization information upon which the charges are based, shall be reported to the user immediately upon completion of the user's job. The user shall also be provided software utilities and commands which permit him to dynamically query the system to obtain accurate and up-to-date information respecting the status (funds available, funds spent to date, resources utilized to date, and number of jobs processed to date) of his accounts. The system shall provide an effective access protection scheme to protect against the unauthorized access to user's accounting information.

In addition, a utility shall be provided which produces accurate and up-to-date billing and utilization summary reports by user and account.

3.5 Peripheral Devices and Controllers

The minimum requirements for peripheral devices and controllers are as follows.

3.5.1 Card Reader

Minimum rated speed of 400 cards per minute. Utilize 12 row, 80 column cards with hole size and location specified in FIPS PUB 13, 96 character ASCII or FIPS PUB 14 Hollerith Punched Card Code.

3.5.2 Line Printer

An impact line printer operating at a rate of 1000 lines per minute are required. This printer shall provide 132 columns and a minimum of the 96 printable ASCII characters. Print feed mechanism is to be adjustable from 4 inches to 15 inches. The print is to be 10 characters per inch horizontally and 6 and/or 8 lines per inch vertically. The printer shall print one to five legible copies.

3.5.3 On-Line Storage

The system shall provide sufficient on-line storage to service system-related functions (e.g. temporary files, paging, system routines and tables, etc.) and to accommodate the storage requirements for the first year set forth in Table 3.1. A minimum of two devices shall have removal media.

3.5.4 Magnetic Tape Unit

Two 9-track units operating at a minimum of 1600 characters per inch (CPI) are required.

3.6 Training

The vendor must provide fully qualified personnel and appropriate materials to train Government and Government contracted personnel as indicated in Table 3.6. Training sessions will be held at Government furnished facilities and will consist of classroom-type lectures, workshops, and hands-on experience. Various categories of training which the vendor must provide are described below.

3.6.1 Executive Orientation

The vendor shall conduct a course, not to exceed one-half day, which will acquaint key executives with the general operational features and capabilities of the system.

3.6.3 User Orientation

The vendor shall conduct a course, not to exceed one day, to present an appropriate user overview of the system. Course content should be designed for non-technically oriented users and should describe the system capabilities in general functional terms.

3.6.3 User Technical Training

The vendor shall conduct a course, not to exceed two days, on the detailed technical features and capabilities of the system. Course content should cover interactive system interfaces, terminal operations, communication interfaces, available user software packages, file design techniques, Data Base Management System concept and techniques, transaction processor, etc. This course should not provide specific programming instructions on use of the individual software packages (e.g., COBOL statements, DBMS language, edit commands).

3.6.4 Application Analyst/Programmer Training

The vendor shall conduct a course on each of the major software packages available on the system. This training will prepare the analyst/programmer for making full and effective use of the system and any unique features required in developing, testing, and maintaining application systems. The course will include the following:

- o Instruction on each programming language and related language interfaces (e.g., COBOL).
- o Unique software packages requiring special training for effective use (e.g., DBMS, utilities).
- o Program compilation and testing including test data generation, program development, and use of compiled and test outputs.

3.6.5 System Programmer Training

The vendor shall conduct a course to fully train the system programmers in all aspects of establishing and maintaining the computer system. Course content will include:

- o System generation and implementation of new software releases.
- o File Management.
- o System hierarchy and software components including executive software, transaction processor, and communications software.
- o Performance monitoring including interpretation of error logs.
- o Usage and resource accounting.
- o User oriented software and techniques.
- o Operations support software including start-up, restart, recovery, back-up, fault isolation, and emergency procedures.

3.6.6 Operator Training

The vendor shall conduct a course, including hands-on training, that will assure full understanding of all facets of operating and maintaining all equipment including peripheral and teleprocessing systems.

3.6.7 Continuing Training

The vendor must provide for continuing education on all aspects of the system, as required, for the life of the computer system. Personnel and facilities to support this continuing requirement must be described in the proposal.

3.6.8 Discontinuance of Training

The Government reserves the right to discontinue any or all training services without incurring the cost of the discontinued training services by giving the vendor thirty (30) days notice of its intention to do so.

3.6.9 Review and approval of Training and Schedules

The Government will review all courses and schedules of training prior to holding courses and reserves the right to revise them provided the vendor is notified thirty (30) days prior to commencing training.

Table 3.6 Training Requirements

<u>Type of Training</u>	<u>No. to be Trained</u>	<u>No. of Classes</u>	<u>Completion Schedule</u>
Executive Orientation	30	2	Prior to installation
User Orientation	30	3	3 months after installation
	50	4	12 months after installation
User Technical Training	30	3	3 months after installation
	50	4	12 months after installation
Application Analyst/	15	5	Prior to installation
Programmer Training	30	5	6 months after installation
System Programmer	10	2	Prior to installation
Training	5	1	6 months after installation
Operator Training	20	4	1 month after installation

3.7 Documentation

The vendor shall provide within thirty (30) days after contract award, ten (10) complete sets of literature covering all ADPS equipment and software characteristics and programmer and operator manuals of the proposed computer system. The documentation will include the executive system and use of the command language, data base, file handling, language processors, transaction processor, utilities, communications, unique software, and terminal system. Updates to all delivered hardware/software documentation must be provided for the life of the system. All persons attending the training sessions must be provided a complete set of manuals and pertinent training materials for the course.

3.8 Availability

The proposed system shall be configured so that a failure in a critical component will not cause the system to become inoperable for more than a ten (10) minute period. Critical components of a typical computer system are the following:

- o Central Processing Unit
- o Memory
- o Immediate Access Storage
- o Communications Interfaces

However, regardless of the system architecture, the capability must exist to provide for removal of inoperable or failing components and, after problem analysis and correction, to add them back into the operational system without causing the user community, other than for a short delay, to deviate their processes in any way. In other words, users will not have to be concerned with the status of their process or data when critical components are failing as the system will have the capability to continue the users sessions (batch and interactive), in a normal manner without their involvement (i.e., problem is transparent except for some response, slow down). It is recognized that a small number of individual user jobs could be affected by a failure in a critical component. Removal of failing components must not restrict the functional use of the system and must provide, as a minimum, 50% of the fully configured systems throughput while operating in a degraded mode.

The proposed system shall be fully operational (i.e., not operating in a degraded mode) at least 95% of the scheduled hours for any monthly period. Degraded mode operation shall not exceed 5% of the scheduled hours in any monthly period (estimated scheduled hours for an average month is 350).

For each hour of degraded mode operation in excess of 5% of the scheduled hours the contractor agrees to grant a credit to the Government for one-half (1/2) percent of the total monthly charges for this contract.

For each hour of inoperable system time in excess of 5% of the scheduled hours the contractor agrees to grant a credit to the Government for one (1) percent of the total monthly charges for this contract.

These credits to the Government shall be in addition to those stated in the Downtime Credits section. Total credits will not exceed monthly charges under this contract.

The system shall provide a capability for separating required components to establish, without any functional interference with the production system, a basic configuration that can be used for testing new or problem hardware/software packages. There shall also be a capability to add the separated components back into the production system in a manner that does not affect the user community's functional use. A ten (10) minute delay to perform the above operations is not interpreted to be functional interference to system users.

3.9 Support Personnel

The vendor shall provide twenty (20) person-years of system and applications programming support to be located on-site. These personnel must be highly experienced in the particular area to which they're assigned. Areas for which support is required are as follows:

- o System support -- Three personnel on-site for the first year and one person on-site for the second and third year.
- o Application support -- Five personnel on-site for the first year to assist in expediting new application development using the DBMS and other proposed software tools.
- o Conversion support -- Ten person-years on-site during the first year to assist in expediting conversion of current applications to reduce parallel operational time of system being replaced.

4.0**FACILITY**

The proposed systems will be installed on the fourth (4th) floor of the New Executive Office Building at 726 Jackson Place, N.W., Washington, D.C. EOP is planning to continue operating the currently installed system for approximately six months after installation of the procured system to allow for conversion of applications. Exhibit 4.0 shows the planned layout of the facility at time of installation.

4.1 Floor Space

The vendor must specify floor space requirements for the proposed system. The government will be responsible for providing the necessary space.

4.2 Power

The vendor must specify all power requirements for the proposed system. The Government will be responsible for providing the necessary power. If motor generators are required the vendor will be responsible for providing and installing them.

4.3 Air Conditioning

The vendor must specify the required air-conditioning in sufficient detail to allow the Government to acquire the necessary cooling capacity.

4.4 Chilled Water

A chilled water supply is not currently available to support a computer system. If required to support the proposed system, the chilled water supply will be made available at the estimated cost to the vendor. The vendor will be responsible for furnishing, installing, and maintaining heat exchangers and the electro-mechanical devices for circulating water.

EVALUATION MODEL
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TECHNICAL PROPOSAL

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3.2 Office Automation Tools---

3.2.1 Device Support---

A facility to interface with stand-alone word processing systems such that files (i.e., ASCII text streams without formatting codes) prepared on such systems can be transmitted to the Office Automation system is desirable. This would require a convenient facility for preparation of device handlers appropriate for each stand-alone word processing system.

3.2.2 Office Automation System Access (mandatory)

3.2.3 Office Automation System Monitoring (mandatory)

3.2.4 Archive(mandatory)

3.2.5 Document Characteristics.....---

In order to facilitate the review and editing process, it is desirable that the system maintain the following information for each paragraph within the document:

- o date & time of last edit
- o user identifier of person who last edited the paragraph

3.2.6 Document Production..... ---

3.2.6.1 Text Editing ---

Text Entry and Edit

The capability to specify that upper and lower case shall be ignored when searching for a specified character string is desirable.

A user expandable spelling dictionary is desirable.

3.2.6.2 Review(mandatory)

3.2.6.3 Formatting ---

A user expandable hyphenation dictionary is desirable.

3.2.6.4 Printing and Photocomposition ---

3.2.6.4.1 Local Printing(mandatory)

3.2.6.4.2 Photocomposition ---

Composition System for Line Printer

A Line Printer Composition Program and a Format Parameter Maintenance Program are desirable. These programs shall have the following features.

The Line Printer Composition Program will accept as input the structured full text data base and a parameter file containing the composition specifications for all formats contained in the structured full text data base. The program will produce a printout of the textual data contained in the data file formatted in accordance with the specifications stored in the parameter file.

The parameter maintenance will allow entry of new formats into the system. It will also provide for the modification of formats resident in the system. The system input to the Parameter Maintenance Program shall be from punched cards, magnetic tape, or terminal. The parameter "cards" shall contain the parameter values specified in the following paragraphs.

The parameter file is made up of formats. Each format contains 99 locators. Each locator contains the print specifications for the data that follows that particular locator on input.

Each locator "card" will contain the following fields which define a particular print specification:

<u>Field</u>	<u>Value Limits</u>	<u>Remarks</u>
Leading 0-4		Number of blank lines between print lines.
Bottom Leading below the	0-6	Minimum number of blank lines data element tagged on input by this locator.
Top Leading above the	0-6	Minimum number of blank lines data element tagged on input by this locator. <u>Note:</u> Leading between locators equals the greatest of the top leading of present locator or bottom of previous locator.
Line Length	1-132	Number of characters in line (measured from left margin)
Primary Indent	0-50	Number of spaces from left the first line of locator is indented.
Line Numbers	0-1	0 - No 1 - Yes
Secondary Indent	0-50	Number of spaces from left second and all succeeding lines of locator are indented.
Paragraph Lead	0-4	Number of lines to skip after encountering end of paragraph.
Type face is	1-2	Type face 1 is roman. Type face 2 italic - underline.
Line Type	1-3	Line Type 1 flush left Line Type 2 flush right Line Type 3 center.
Footnote 0-1		0 - locator is not a footnote 1 - locator is footnote

Input: The input file will be in full text data base (FTDB) structure. The structure of each function code and the operation that this program is to perform upon encountering it is given in Table 3.2.6.4.1.

The bit configuration assigned to the character and function codes can vary from file to file. The structure, however, will always be the same so that a translation table must be included in the program. The translate tables may be stored on magnetic tape or disk. The system should permit up to ten tables to be resident in the system. It shall be possible to key a new table or modify one of the present tables from a terminal or computer console. There shall be 256 entries in each table and they will be keyed in the following form: XX : yy

Where XX is the input code of the character and yy is the internal system code for the same character. The typeset character complement of each job to be processed may exceed the characters available on the "print chain" of the printer. A character for which there is no corresponding character on the printer can be translated to a selected alternate by making the necessary modification to the translate table described above.

Output: The printout produced by the program will be single column text (and "spaced" tabular). Page size will be controlled by printer tapes, etc. No "widow" logic will be required. Lines will be formatted as described in the section on input. Characters printed will be a function of the "print chain" mounted on the printer and the translate table defined above.

3.2.7 Document Control..... (mandatory)

3.2.8 Electronic Mail..... --

3.2.8.1 Preparing Mail(mandatory)

3.2.8.2 Format of the Mail --

The following fields are desirable:

o File Carbon Copy

o Blind Carbon Copy

o Keywords

It is desirable that a user be able to modify the formats used for input and display of mail.

3.2.8.3 Sending Mail..... (mandatory)

3.2.8.4 Receiving Mail..... (mandatory)

3.2.8.5 Status of Mail.....(mandatory)

POINTS

3.3 Communications Functions ---

3.3.1 General..... (mandatory)

3.3.2 Line Control(mandatory)

3.3.3 Desirable Features ---

3.3.3.1 CCITT X.25 Hardware and Software ---

At least one I/O interface which meets the CCITT X.25 specifications

3.3.3.2 Terminal Protocols ---

IBM 2741 and compatible units

IBM 2780 and compatible units

Automatic speed detection/selection for the following speeds: 150, 300, 1200, 4800, and 9600 bps.

POINTS

3.4 Operating System and Related Functions ---

3.4.1 User Interface(mandatory)

3.4.1.1 General (mandatory)

3.4.1.2 Access Control Security Features(mandatory)

3.4.1.3 Command Language Interpreter(mandatory)

3.4.1.4 Command Language(mandatory)

3.4.2 Programming Language Translators ---

3.4.2.1 Compilers (mandatory)

3.4.2.2 Interpreters or Incremental Compilers ---

The following are desirable:

o *BASIC*

o *APL*

3.4.3 Sort (mandatory)

3.4.4 Data Base Management.....---

3.4.4.1 Report Writer and On-Line Query/Report.....---

It is desirable that the report writer allow reading and writing of non-DBMS files.

3.4.4.2 On-Line Update.....---

It is desirable that the editing function also include legal values.

3.4.4.3 Macro Definition.....(mandatory)

3.4.4.4 Data Manipulation Language..... (mandatory)

3.4.4.5 Data Independence.....---

It is desirable that other data description changes (e.g. changing the length of a data element, and deleting data elements) be made without impacting existing programs which reference that data base unless an attribute upon which those programs depend has been changed.

3.4.4.6 Data Description Language.....---

It is desirable that the Data Description Language provide the following capabilities:

- o *Support of a variety of data element value storage criteria (e.g., Null value suppression, fixed length, variable length, encryption, etc.)*
- o *Support of a variety of data element constructions (e.g., multivalued, periodic groupings, sub division of a data element into one or more data elements requiring a value to be entered only for the data element being sub divided, etc.)*

3.4.4.7 Data Loading.....(mandatory)

3.4.4.8 Data Directory..... (mandatory)

3.4.4.9 Data Base Administration.....---

It is desirable that these reports indicate, for each data base file, information such as the number of records, mass storage utilized, date of last update, date of creation, and other information relevant to the management of data base files.

3.4.4.10 Data Base Security..... ---

It is desirable that the capability to obtain security reports showing attempts at unauthorized access of data base files at the file and element level be provided.

3.4.4.11 Data Base Integrity (mandatory)

3.4.4.12 Data Base Design(mandatory)

3.4.4.13 Text Storage and Retrieval.....(mandatory)

3.4.5 File System.....(mandatory)

3.4.5.1 Access Protection

3.4.5.2 Space Management

3.4.5.3 File Structures

3.4.5.4 File Utilities

3.4.5.5 Protection against System and Operational Failures

3.4.6 Resource Accounting.....(mandatory)

3.4.6.1 Controlling

3.4.6.2 Charging

3.4.6.3 Recording

3.4.6.4 Reporting

- 3.5 Peripheral Devices and Controllers (mandatory)
 - 3.5.1 Card Reader
 - 3.5.2 Line Printer
 - 3.5.3 On-Line Storage
 - 3.5.4 Magnetic Tape Unit
- 3.6 Training..... (mandatory)
 - 3.6.1 Executive Orientation
 - 3.6.3 User Orientation
 - 3.6.3 User Technical Training
 - 3.6.4 Application Analyst/Programmer Training
 - 3.6.5 System Programmer Training
 - 3.6.6 Operator Training
 - 3.6.7 Continuing Training
 - 3.6.8 Discontinuance of Training
 - 3.6.9 Review and approval of Training and Schedules
- 3.7 Documentation..... (mandatory)
- 3.8 Availability (mandatory)
- 3.9 Support Personnel(mandatory)

Performance (Timed) Benchmark

POINTS

A. Time Required to Complete Functional Benchmark

B. Interactive Response.....

EVALUATION MODEL
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POINTS

2.2 Computation and Storage Functions

2.2.1 User Interface (mandatory)

2.2.2 Programming Language Translators

2.2.2.1 Compilers (mandatory)

2.2.2.2 Interpreters or Incremental Compilers ---

The following are desirable:

- o BASIC*
- o APL*

2.2.3 Data Base Management

2.2.3.1 Report Writer and On-Line Query/Report ---

It is desirable that the report writer allow reading and writing of non-DBMS files.

The capability to retrieve data element values from more than one related data base file in the same query and to use these elements in a single report is desirable.

2.2.3.2 On-Line Update.....---

It is desirable that the editing function include legal values, date conversions/formatting, and table values.

It is desirable that the user can perform delete and change functions on groups of records by qualifying those records based on some data element value (e.g., delete all records where the data element STATE CODE is equal to "CA").

1

2.2.3.3 Macro Definition.....(mandatory)

2.2.3.4 Data Manipulation Language--

It is desirable that a DML interface to FORTRAN be provided.

It is desirable that the DML provide the following capabilities:

- o Direct support of retrieval based on boolean or arithmetic operators against any data element in the data base.*
- o End-user oriented diagnostic messages.*
- o Direct support of sorted retrieval of records on more than one data element (e.g., sort records qualified in descending order by data element 1, data element 2, and data element 3..... major to minor).*
- o Provides information on the number of records that qualify in a particular retrieval operation with this information directly available to the user program for use in constructing various operations.*

2.2.3.5 Data Independence.....---

It is desirable that other data description changes (e.g. changing the length of a data element, and deleting data elements) can be made without impacting existing programs which reference that data base unless an attribute upon which those programs depend has been changed.

2.2.3.6 Data Description Language---

The ability to specify legal values, edit criteria, table values, and date conversions is desirable.

It is desirable that the Data Description Language provide the following capabilities:

- o Support of a variety of data element formats (e.g., alpha, numeric, date conversion, packed decimal, binary, etc.)*
- o Support of a variety of data element value storage criteria (e.g., Null value suppression, fixed length, variable length, encryption, etc.)*
- o Support of a variety of data element constructions (e.g., multivalued, periodic groupings, sub division of a data element into one or more data elements requiring a value to be entered only for the data element being sub divided, etc.)*
- o Support of on line data base definition via a end-user oriented interactive dialogue.*

2.2.3.7 Data Loading---

It is desirable that a data file loading capability (on-line and high volume) be provided along with the ability to specify simple edit criteria (e.g., alpha and numeric) at the data element level. This capability must provide for conversion of existing user files to DBMS data base files without developing user conversion programs.

2.2.3.8 Data Dictionary/Directory---

It is desirable that a full Data Dictionary/Directory capability be provided (e.g., Contents: data element definitions, legal codes and values, report occurrence, forms occurrence, user responsibility, etc.). The capability to produce a set of standard reports of dictionary contents is desirable. The user shall be capable of accessing the dictionary contents for specialized user written reports of the dictionary contents.

It is desirable that the Data Dictionary/Directory be integrated with the on-line query and report writers specified in section 2.2.3.1. Integration shall ensure that the Data Dictionary/Directory is in complete agreement with the Data Description of any DBMS file.

2.2.3.9 Data Base Administration---

It is desirable that these reports indicate for each data base file such items as the number of records, mass storage utilized, date of last update, date of creation, and other information relevant to the management of data base files.

2.2.3.10 Data Base Security---

The capability to obtain security reports showing attempts at unauthorized access of data base files at the file and element level is desirable.

2.2.3.11 Data Base Integrity (mandatory)

2.2.3.12 Data Base Design---

It is desirable that the DBMS support retrieval on strings within a textual data element.

2.2.4 File System (mandatory)

2.2.4.1 Access Protection

2.2.4.2 Space Management

2.2.4.3 File Structures

2.2.4.4 File Utilities

2.2.4.5 Protection against System and Operational Failures

2.2.5 Utilities, Subsystems and Libraries

2.2.5.1 Applications Library---

A time-series package (with forecasting method and transform variables) is desirable.

A linear-programming package (with integer programming, sensitivity testing, and zero-sum/two person games) is desirable.

2.2.5.2 Applications Program Development Subsystem.....---

It is desirable that an on-line command-driven, symbolic debugging utility be provided for each language (COBOL, Fortran, PL/I) which allows the user to dynamically examine and modify any portion of his program and which performs searches, gives conditional dumps and links to user-coded debugging routines at user-defined program breakpoints.

2.2.5.3 Sort (mandatory)

2.2.6 Resource Accounting (mandatory)

2.2.6.1 Controlling

2.2.6.2 Charging

2.2.6.3 Recording

2.2.6.4 Reporting

2.2.7 Resource Scheduling (mandatory)

2.2.7.1 Job Mix

2.2.7.2 Scheduling

2.2.8 Response Requirements (mandatory)

2.2.8.1 Instantaneous Response

2.2.8.2 Fast Response

2.2.8.3 Quick Response

2.2.8.4 Medium Response

2.2.8.5 Slow Response

2.2.8.6 Delayed Response

2.2.8.7 Background (Batch)

POINTS

- 2.3 Communications Functions.....
- 2.3.1 General (mandatory)
- 2.3.2 Line Control (mandatory)
- 2.3.3 Desirable Features---
- 2.3.3.1 CCITT X.25 Hardware and Software.....---
- At least one I/O interface which meets the CCITT X.25 specifications
- 2.3.3.2 Terminal Protocols---
- IBM 2741 and compatible units
- IBM 2780 and compatible units
- Automatic speed detection/selection for the following speeds: 150, 300, 1200, 4800, and 9600 bps.

POINTS

2.4 Text Processing Functions.....

2.4.1 General (mandatory)

2.4.2 Device Support (mandatory)

2.4.3 Text Entry and Edit

The capability to verify the spelling of words in a document via a system-supplied dictionary is desirable.

2.4.4 Text Formatting

A user expandable hyphenation dictionary is desirable.

2.4.5 Text Storage and Retrieval.....

2.4.5.1 General (mandatory)

2.4.5.2 Structure ---

It is desirable that the structure of the text data base be such that data stored therein can be identified (and retrieved) at the field, paragraph, document, and data base levels. This identification criterion shall be such that cross-referencing between data bases via concatenations can be accomplished with a single query.

2.4.5.3 Automatic Indexing (mandatory)

2.4.5.4 File Access and Management Capability..... ---

It is desirable that the standard services of the operating system for file access and management be used to support the text storage and retrieval system.

2.4.5.5 Query Capability.....---

It is desirable that the proposed system for text storage and retrieval provide a facility to search and retrieve documents in interactive dialog between the user and the system. This capability shall include:

- o Keyed Searches - assignment of words, word pairs, or phrases as index terms or keys to textual data*
- o Proximity Searching - rapid searching of words in text. Users shall be able to specify word distance conditions (e.g., the string "John" immediately followed by the string "Smith" or the string "John" followed by any intervening string followed by "Smith")*

It is desirable that a capability be provided for matching of keys or index terms against a thesaurus for indexing control.

It is desirable that queries be storable so as to minimize the necessity to rekey recurring query procedures

2.4.5.6 Data Base Creation and Maintenance (mandatory)

2.4.6 Text Markup Capability (mandatory)

2.4.7 Printing and Photocomposition

2.4.7.1 Local Printing (mandatory)

2.4.7.2 Photocomposition.....---

Composition System for Line Printer

A Line Printer Composition Program and a Format Parameter Maintenance Program are desirable. These programs shall have the following features.

The Line Printer Composition Program will accept as input the structured full text data base and a parameter file containing the composition specifications for all formats contained in the structured full text data base. The program will produce a printout of the textual data contained in the data file formatted in accordance with the specifications stored in the parameter file.

The parameter maintenance will allow entry of new formats into the system. It will also provide for the modification of formats resident in the system. The system input to the Parameter Maintenance Program shall be from punched cards, magnetic tape, or terminal. The parameter "cards" shall contain the parameter values specified in the following paragraphs.

The parameter file is made up of formats. Each format contains 99 locators. Each locator contains the print specifications for the data that follows that particular locator on input.

Each locator "card" will contain the following fields which define a particular print specification:

<u>Field</u>	<u>Value Limits</u>	<u>Remarks</u>
Leading	0-4	Number of blank lines between print lines.
Bottom Leading	0-6	Minimum number of blank lines below the data element tagged on input by this locator.
Top Leading	0-6	Minimum number of blank lines above the data element tagged on input by this locator. <u>Note:</u> Leading between locators equals the greatest of the top leading of present locator or bottom of previous locator.
Line Length	1-132	Number of characters in line (measured from left margin)
Primary Indent	0-50	Number of spaces from left the first line of locator is indented.
Line Numbers	0-1	0 - No 1 - Yes
Secondary Indent	0-50	Number of spaces from left second and all succeeding lines of locator are indented.
Paragraph Lead	0-4	Number of lines to skip after encountering end of paragraph.
Type face	1-2	Type face 1 is roman. Type face 2 is italic - underline.
Line Type	1-3	Line Type 1 flush left Line Type 2 flush right Line Type 3 center.
Footnote	0-1	0 - locator is not a footnote 1 - locator is footnote

Input: The input file will be in full text data base (FTDB) structure. The structure of each function code and the operation that this program is to perform upon encountering it is given in Table 2.4.7.1.

The bit configuration assigned to the character and function codes can vary from file to file. The structure, however, will always be the same so that a translation table must be included in the program. The translate tables may be stored on magnetic tape or disk. The system should permit up to ten tables to be resident in the system. It shall be possible to key a new table or modify one of the present tables from a terminal or computer console. There shall be 256 entries in each table and they will be keyed in the following form: XX : yy

Where XX is the input code of the character and yy is the internal system code for the same character. The typeset character complement of each job to be processed may exceed the characters available on the "print chain" of the printer. A character for which there is no corresponding character on the printer can be translated to a selected alternate by making the necessary modification to the translate table described above.

Output: The printout produced by the program will be single column text (and "spaced" tabular). Page size will be controlled by printer tapes, etc. No "widow" logic will be required. Lines will be formatted as described in the section on input. Characters printed will be a function of the "print chain" mounted on the printer and the translate table defined above.

2.5 Peripheral Devices and Controllers (mandatory)

2.5.1 Card Reader

2.5.2 Card Punch

2.5.3 Line Printers

2.5.4 On-Line Storage

2.5.5 Magnet Tape Unit

2.5.6 Operator's Console

2.6 Training (mandatory)

2.6.1 Executive Orientation

2.6.2 User Orientation

2.6.3 User Technical Training

2.6.4 Application Analyst/Programmer Training

2.6.5 System Programmer Training

2.6.6 Operator Training

2.6.7 Continuing Training

2.6.8 Discontinuance of Training

2.6.9 Review and Approval of Training and Schedules

2.7 Documentation (mandatory)

2.8 Availability (mandatory)

2.9 Support Personnel (mandatory)

Performance (Timed) Benchmark

POINTS

A. Time Required to Complete Benchmark Test

B. Interactive Response.....